Crathco® Beverage Freezers

Operation and Instruction Manual
for
Models 5512 & 5512E

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Prior authorization must be obtained from Grindmaster Corporation for all warranty claims.



Model 5512

GRINDMASTER™
CORPORATION

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0106 Form #WH-332-04
Part #W0600138

Operator's Safety Precautions

1. Read and understand the operating instructions in this manual thoroughly.
2. Note all warning labels on the freezer. If any warning labels are missing or damaged replace them immediately.
3. Do not wear loose fitting garments or jewelry which could cause a serious accident.
4. Stay alert at all times during operation.
5. Keep operating area clean.
6. Do not operate freezer if any excessive noise or vibration occurs. Contact your authorized service agent.

Installation

Shipment & Transit

The freezer has been operated and tested at the factory. Upon arrival the complete freezer must be thoroughly checked for any damage which may have occurred in transit.

Note: A Tip (N) Tell warning device is placed on each shipping carton at the factory. If the arrow tip is blue, the carton has been tipped in transit.

Removal from Carton and Pallet

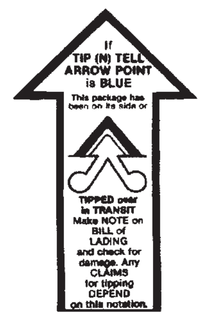


Figure A

1. Remove staples or cut cardboard box around the stapled area.
2. Pull the cardboard box up off machine.
3. Remove the Styrofoam packing and the plastic bag.
4. Remove both side panels with screwdriver.
5. Use a wratchet with a 3 inch extension and a 7/16 socket to remove the shipping bolts (connecting the machine to the pallet) located on both sides of the frame bottom plate.
6. Supporting all four sides, lift machine up and place in appropriate area.

THE CARRIER IS RESPONSIBLE FOR ALL DAMAGE IN TRANSIT WHETHER VISIBLE OR CONCEALED. DO NOT PAY THE FREIGHT BILL until the freezer has been checked for damage. Have the carrier note any visible damage on the freight bill. If concealed damage and/or shortage is found later, advise the carrier within 10 days and request inspection. The customer must place any claim for damage and/or shortage with the carrier. Grindmaster Corporation cannot make any claims against the carrier.

⚠ **CAUTION: IF EQUIPPED WITH SPINNER DO NOT LIFT UNIT BY SPINNER SHAFT TO AVOID SERIOUS DAMAGE TO SPINNER.**

Installing Your Unit

⚠ **CAUTION: Do not alter or deform the plug in any way. Altering or deforming plug may damage unit and will void warranty! Receptacle NEMA 6-20R required for Model 5512.**

1. Place freezer in a location that allows adequate space at each side and above for proper air circulation. Minimum clearance is: 6” (15 cm) on both sides, 4” (10 cm) at back, and 8" (20 cm) above the freezer. See figure B.

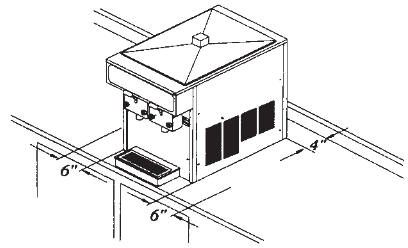


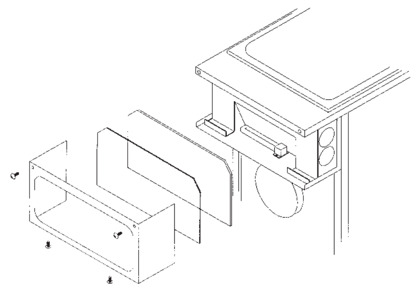
Figure B
Proper air clearance

⚠ **CAUTION: Failure to allow adequate ventilation will void the warranty and reduce freezer performance.**

2. Place the freezer on the self-sealing rubber pad on a level counter that is stable and strong enough to safely support its weight (276 lbs/124.2 kg). If equipped with legs instead of pad, install legs by screwing them into the four leg holes on the bottom of the unit. (Leg Kit Part #W089.0220 (4) 4” Legs.)

3. Place On-Off-Clean switches in OFF position.

4. Install header by removing all four screws from the electrical box cover. Carefully remove electrical box cover. Place the header (transparency) between the clear and opaque plates (plastic lens). Slip the electrical box cover back on to machine and reinsert the four screws. (*See Figure C)*


Figure C

5. Install the standard one piece carb tube by placing it in the hole in the hopper. If your unit is equipped with a two piece smoothie/shake carb tube place the solid piece in the hole in the hopper with the hole facing front to back. Then place the carb tube sleeve over the solid piece, lining up one of the holes with the hole in the solid piece. (Select the larger hole for thickest products).

6. Connect the power cord to a properly grounded DEDICATED 20 Amp circuit.

IMPORTANT: See Autofill Installation for information on set up of remote fill control and proportioning pump assembly.

Installation of Concealed Air Filter Accessory Kit (optional) (Part #’s W0890200 Stainless Steel, W0890208 Black)

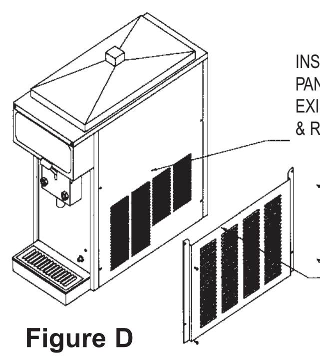


Figure D

1. Remove the four screws that hold the right side panel on the machine.

2. Install the filter panel over the existing side panel and reinstall screws. (See Figure D)

3. Open top cover of filter cover by raising and rotating away from the existing panel.

4. Slide filter into top of filter cover with removal clip up and the air flow arrows facing the existing panel. (See Figure E)

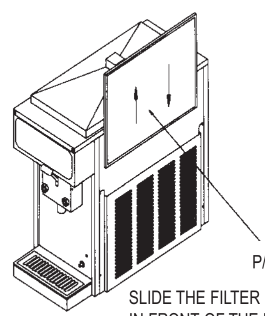


Figure E

5. Push filter down until flush with the top of the cover.

6. Close the top cover by rotating the top back toward the existing cover and pushing down once it is in place.

Installation of Exposed Filter Accessory Kit (optional) (Part #W089.0206)

1. Remove the four panel screws.
2. Pull the bottom of the panel out.
3. Run a bead of the silicone adhesive at the inside back of the bottom filter channel. (2)
4. Install the channel over the end of the side panel so the adhesive in the channel contacts the bottom edge of the side panel.

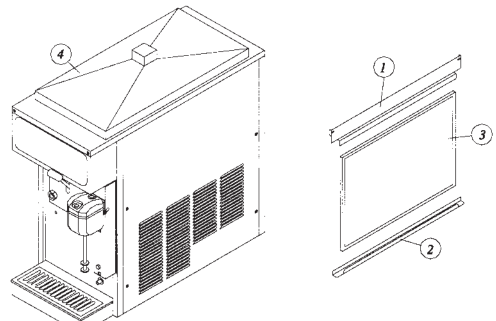


Figure F

5. Put the panel with the channel added, back in place on the machine and reinstall the two lower panel screws.
6. Apply silicone adhesive to the length of the top edge of the upper filter channel (1) before installing, then wipe off any excess.
7. Install the upper channel using the upper panel screws.
8. Slide filter (3) in from the front with the arrows pointing toward the existing panel. The thick wire side of the filter should face outward.

Installation of Spinner/Mixer Accessory Kit (optional)

(W047119 5512 Spinner Mount Bracket)

1. Turn to "OFF" and unplug the freezer from the electrical power source.
2. Remove the existing panel screws (F).
3. Install (B) to the front panel of (A) using the cap screws (E).
4. Re-install existing panel screws (F) through the obround holes in the spinner mount bracket (B).
5. Install the spinner (C) using mounting screws (D).
6. Connect white and brown wire from the spinner (C) to the red wire from the electrical box using the blue wire nut provided.
7. Connect white and blue wire from the spinner (C) to the blue wire from the electrical box using the blue wire nut provided.

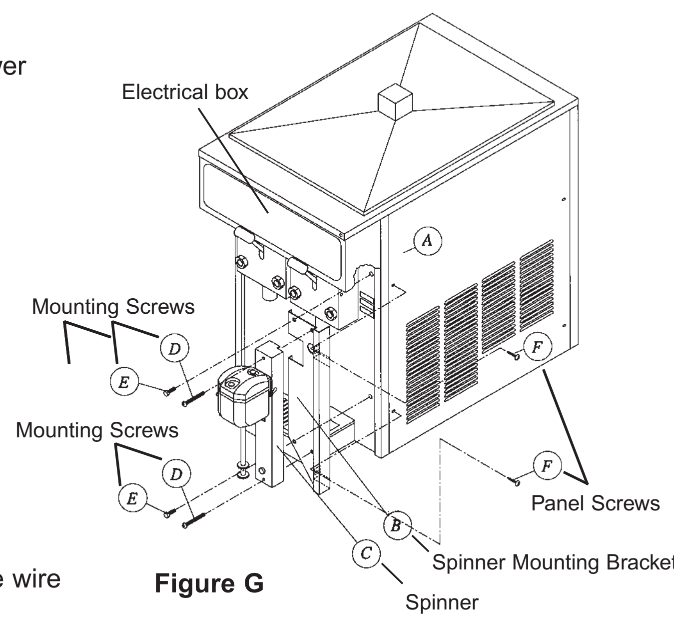


Figure G

8. Connect green and yellow wire from the spinner (C) to the green wire from the electrical box using the blue wire nut provided.(See Figure G)
9. See the spinner-wiring diagrams on page 37 to locate spinner wire connections.

Operation & Adjustments

How to Operate:

1) Sanitize unit following the cleaning instructions on page 12.

2) Fill hopper with product. Allow barrel to fill with product to the proper level, then install carb tube.

3) Turn power switch (toggle switch located underneath the electrical box) to "on" position.

4) Turn mode switch (rocker switch located next to power switch) to “freeze” position.

5) Allow product to freeze in barrel.

6) To dispense product pull down valve handle and release when done.

7) If product consistency is not as desired, adjust per the instructions on page 10.

Mix Considerations - General

Freezing characteristics are affected by the amount of sweeteners and solids in the mix. The amount of sweeteners and solids is called BRIX. BRIX can be measured with an instrument called a refractometer. A BRIX reading of between 11 and 14 will provide optimum freezer operation. Mixes with this brix level will freeze down to a smooth, uniform consistency. Mixes with too high a brix level will take longer to freeze down and will yield a soft wet frozen product. Mixes with too low a brix level will have larger ice crystals and will have a tendency to dispense slowly.

NOTE: Always take BRIX measurements using mix that has been thoroughly blended, before it is frozen. Always allow frozen mix to thaw thoroughly before taking a reading

Alcohol content also affects product freezing characteristics and may prevent the freezer from serving a product at proper thickness.

For maximum output capacity always pre-chill mix before adding it to the freezer. Pre-chilled mix gives the freezer a head start on the freezing process and will speed both initial freeze down and recovery time. It is normal for output capacity to decrease when warm mix is added, or when the freezer is operated in a warm area

Carburetor Assembly

Your new freezer uses a metering device, known as a carburetor, to feed the proper ratio of mix and air into the freezing cylinder. For products such as diary based shake mixes, the proper mix to air ratio is generally accepted to be two parts mix to one part air. This proportion yields a finished product that is both tasty and profitable. At this ratio, one gallon of liquid mix will yield a volume of one and one-half gallons of frozen product. This 50% increase in volume from liquid to frozen product is referred to as OVERRUN.

The carburetor is a tube with a hole, or series of holes, bored through the side. It is located in the hopper and fits in a hole that leads to the freezing cylinder. Air flows into the freezing cylinder through the top of the tube and mix flows in through a smaller hole in the side of the carb tube. The size of the mix inlet is balanced with the viscosity (thickness) of the liquid mix and product draw rate, in such a way that the proper amount of mix is fed into the freezer cylinder to blend with air at just the right ratio. Mix viscosity varies by mix type, mix temperature and mix age. Different serving rates also demand different feed rates. Grindmaster Corporation’s carburetor has an outer sleeve that can be rotated to line up with different hole sizes to provide ideal overrun under all operating conditions.

You will need to experiment to determine how much mix to add to the freezing cylinder at start-up. This can be done by watching the level of mix though the clear plastic dispensing valve when filling the hopper. When the correct amount of mix feeds into the freezing cylinder install the carburetor tube in the "Off" position (outer sleeve set between any two holes) and turn the freezer "ON" to freeze down to proper consistency.

Overrun

Overrun is the increase in product volume, expressed as a percentage, resulting from the entrapment of air in liquid mix as it is frozen.

The rotating dasher blends air into the mix as it is frozen resulting in increased frozen product volume. For example, if one gallon (1) (4.4 liters) of liquid mix is poured into a freezer and one and a half gallons (1/2) (6.6 liters) of frozen product is drawn out, the result is a fifty percent volumetric increase, or a fifty (50%) percent "overrun".

Why is overrun important? The introduction of air into the finished frozen product is essential from two stand points...taste and profitability. Frozen product with a low percentage of overrun costs more to serve, appears wet and is heavy. The introduction of air makes the finished frozen product taste richer. Too much air causes the finished product to be too light and fluffy, making it less satisfying and adversely affecting sales.

The optimum percentage of overrun varies from one type of mix to another, but 50% overrun seems to be a good average. The ingredients in some mixes take on and hold air easier.

Overrun also effects profitability. For example, an increase from 25% to 50% overrun represents a mix savings of 17%.

Uniform overrun insures consistent portion costs. If overrun is allowed to drop, it will cost more to serve a portion of finished product.

Computing Overrun

1. Weigh an empty cup.

2. Weigh this cup filled with liquid mix, subtract the weight of the cup.

NOTE: Repeat this step only when changing mix sources, as mix weight will vary slightly from one supplier to another.

3. Draw a heaping cup of frozen product that contains no air pockets. NOTE: Use a spatula or other device to help fill the cup completely. Avoid tamping the cup as this artificially reduces overrun.

4. Use a straight edge to scrape off excess product flush with the rim of the cup and weigh the cup.

5. Subtract the cup weight and use the overrun formula to determine overrun.

$$\frac{\text{Weight of Liquid Mix (Minus) Weight of Frozen Product}}{\text{Weight of Frozen Product}} \times 100 = \text{OVERRUN}$$

For Example:
If a full cup of liquid mix weighs 23 ounces and a full cup of frozen product weighs 15-1/2 ounces, then:

$$\frac{23 - 15\text{-}1/2}{15\text{-}1/2} \times 100 = 48.4\%\ \text{Overrun}$$

NOTE: Several companies manufacture scales that automatically read out the overrun for one pint samples. A scale of this type is a valuable tool and should be part of any well run operation. A trick is to place the empty cup on the scale and zero it out first, this will then automatically eliminate the weight of the cup from the calculation.

Overrun has a major impact on the size of the finished frozen portion. As the percentage of overrun (air in the frozen product) increases, the size of the finished portion also increases, yet the portion weight remains the same. For example, an increase from 25% to 50% overrun will yield a 20% larger portion. Customers equate size with perceived value so proper overrun will result in increased customer satisfaction. Experiment with carburetor settings to achieve optimum overrun and product quality with each mix. Some products such as Cappuccino taste better with low overrun. Experiment with different carburetor settings to find the ideal combination for each product.

Standby Switch

The "STANDBY" switch allows the operator to retain optimum product quality and conserve energy during extended non-draw periods. The Stand-by mode keeps the mix in the hopper at a safe storage temperature and allows the product in the freezing cylinder to return to a refrigerated liquid state. Switching back to "ON" quickly returns the product in the freezing cylinders to proper serving consistency.

At the start of the “STANDBY” period:

1. Fill the hoppers with fresh mix.
2. Select the “STANDBY” mode...the front panel “STANDBY” lights will illuminate.
3. Turn the carburetor outer tubes to the OFF position (between any two holes). This will prevent any mix from flowing into the freezing cylinder and reducing overrun. NOTE: Loss of overrun is one of the main reasons for soft, wet looking frozen product.

At the end of the “STANDBY” period:

1. Turn the carburetor tubes back to their original setting.
2. Turn the switches to the “FREEZE” position. The FREEZE lights will illuminate.
3. When the freezer cycles off by reaching the desired temperature you are ready to start serving.

IMPORTANT: The STANDBY SWITCHES should not be used in lieu of cleaning and sanitizing procedures specified by local regulatory agencies.

Mix Low Function

This model will sense when the mix is low in the hopper. The mix low light will illuminate continuously for 2 minutes. After 2 minutes the light will begin to blink off and on for the next 8 minutes. The buzzer in the mix out circuit is 2 minutes off and 5 seconds (or 5 beeps) on for a total of 10 minutes. At the end of the 10-minute time the buzzer is out of the circuit and the light will illuminate fully again. After the 10-minute cycle the mix out safety function is activated making the unit inoperable. The machine is placed into the standby mode to prevent any damage to the machine from running dry of product. The unit can be reset back to the freeze mode by simply adding mix into the hopper.

1. If the unit is low in mix or the unit shuts down due to extended mix low condition (“Mix Low” safety function has activated), refill hopper with fresh product. The unit will automatically revert back to its original operation mode.

2. If the mix low safety function has activated disabling the unit, and the product has not been added for an extended period of time - verify the product is okay for re-use. If it is not, use fresh product to restart the unit. Empty the unit of old product and follow sanitizing (page 12) and start up procedures (page 6).

Product Tips

The Model 5512 was designed to dispense a wide variety of frozen beverages including smoothies, frozen cappuccino, shakes, and frozen cocktails. These products can be served in consistencies ranging from thin to fairly thick. For optimum long term freezer reliability, it is recommended that product thickness not be set too thick.

Two types of white plastic dispensing valve plungers are available. One style, P/N W0480462, is used to serve thin to medium products such as cappuccino and cocktails. This plunger has one horizontal outlet slot. The other plunger, P/N W0480463, is used to serve thicker product such as shakes and smoothies and has two horizontal outlet slots. These plungers are interchangeable.

Over an extended period of time some products, such as frozen cocktails that contain alcohol and lemonade, have a tendency to separate, or stratify. Separation of product in the mix storage hopper can result in frozen product quality inconsistencies.

Product Tips (cont.)

Some cappuccino or latte' mixes contain dairy products which can spoil if not refrigerated. If the freezer is to be turned off at night these products must be removed from the freezer. Contact your local health department regarding their regulations regarding proper mix handling and storage.

Consistency Control - Overview

⚠ **CAUTION: SHOCK HAZARD! THIS ADJUSTMENT REQUIRES REMOVAL OF THE ELECTRICAL BOX COVER AND SHOULD BE MADE BY A QUALIFIED SERVICE TECHNICIAN.**

An electronic circuit board, mounted inside the front electrical box, controls the consistency (thickness) of the frozen product in the "Freeze" setting, and controls the freezing cylinder and storage hopper temperature in the "StandBy" mode.

The "freeze" mode consistency setting adjusts the frozen product thickness. In the "freeze" mode, as the liquid mix in the cylinder freezes, it becomes harder for the motor to turn the dasher assembly. The control board senses the amount of energy that the drive motor consumes as it rotates the dasher assembly through the product in the cylinder. The control board will turn the compressor and barrel solenoid valve off at the proper consistency. The drive motor will continue to run for 45 seconds after the compressor is cycled off. This is called the blending cycle. After the blending cycle is complete the drive motor also is shut off. The drive motor and compressor will run together at any time refrigeration is required in the barrel. The compressor will run independently for the hopper if required. The hopper is controlled by temperature. The thermistor will signal the board and the board will start the compressor and open the hopper solenoid valve.

The unit will remain off until either the timer in the control board (either 10 or 15 minutes dependent upon which value is selected) restarts the drive motor. In this case the drive motor will run for 45 seconds and if no refrigeration is required the drive motor will then shut off. If refrigeration in the barrel is required the freeze cycle is repeated as well as the blending cycle. The unit will also restart the drive motor if the plunger is raised. The plunger switch will start the drive motor and remain on as long as it is held open. After the plunger is closed the drive motor will continue to run for 45 seconds.The compressor will start, and barrel solenoid valve will open. If refrigeration is required during this time the freeze cycle and blend cycle will follow.

In the "standby" mode, the control board senses the temperature of the product in the barrel. The drive motor is cycled on time only. It will operate for 2 minutes ON then 18 minutes OFF as long as it is in "standby". The compressor and drive motor are cycled independently for the barrel in the "standby" mode. Once the barrel thermistor signals to the board, the board will start the compressor and the barrel solenoid valve will open as refrigeration is required. It will continue to run until satisfied. The plunger switch is disabled and the drive motor will not start when the plunger is opened. The hopper is still controlled by temperature. If the thermistor signals a raise in temperature the compressor will start and the hopper solenoid valve will be opened. It will continue to run until satisfied.

In the "clean" mode the drive motor will run continuously. (The compressor will not run in the "clean" mode.) This is for emptying out product for cleaning purposes.

⚠ **CAUTION: SHOCK HAZARD! THIS ADJUSTMENT REQUIRES REMOVAL OF THE ELECTRICAL BOX COVER AND SHOULD BE MADE BY A QUALIFIED SERVICE TECHNICIAN.**

The electronic control has three adjusters; one to set the "Freeze" mode product consistency (thickness), one to set the "StandBy" mode cylinder temperature and one to set the "StandBy" mode hopper temperature. The "Freeze" mode consistency setting adjusts frozen product thickness. Always adjust this control to deliver a frozen product that is as thin (soft) as possible yet is still acceptable to the customer.

There are eleven (11) lights on the circuit board that indicate the following: (See Figure H)

BARREL (D1) - Illuminated when the freezing cylinder (barrel) has achieved the pre-set temperature in the "Stand- by" mode.

HOPPER (D2) - Illuminated when the hopper has achieved the pre-set temperature in the "StandBy" mode.

Consistency Control -Overview (cont.)

WASH (D3) - Illuminated when the mode switch is in the wash or "Clean" position.

FREEZE (D4) - Illuminated when the mode switch is in the "Freeze" mode.

DISPENSE (D5) - Illuminated when the dispensing valve is open calling for both the compressor and drive motor to operate.

GREEN CONSISTENCY (D6) - Off when the motor and compressor are off. Illuminated when the compressor and dasher are bringing product to preset consistency. Blinks as preset consistency is achieved and then goes out.

RED CONSISTENCY (D7) - Blinks as preset product consistency is approached. Glows steadily when preset consistency is achieved and then goes out.

COIL (D8) - Compressor contactor energized

COIL (D9) - Drive motor coil energized

COIL (D10) - Hopper refrigeration solenoid coil energized

COIL (D11) - Freezing cylinder refrigeration solenoid coil energized

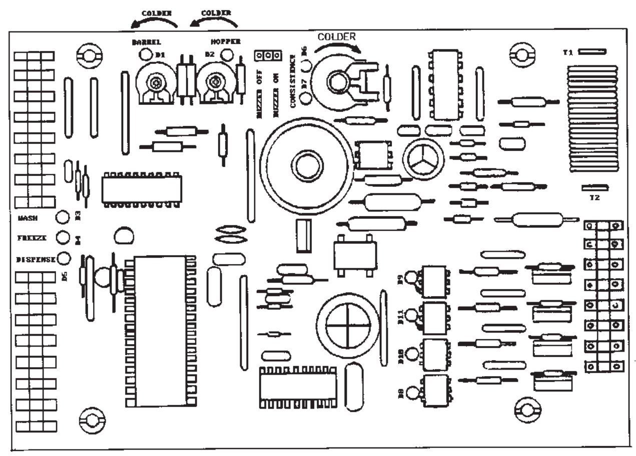


Figure H

Product Consistency Adjustment

1. Remove the Front electrical box cover.

2. If the product in the cylinder has been frozen for more than 30 minutes, draw out 16 ounces (1/2 liter) before checking consistency.

3. Turn the consistency control knob, (see figure H) located at the right center of the circuit board, clockwise to achieve a colder setting (thicker product) or counterclockwise to achieve a less cold setting (less thick product).

⚠ CAUTION: THIS CONTROL SETTING IS VERY SENSITIVE SO ALWAYS MAKE SMALL ADJUSTMENTS. IF YOU VISUALIZE THIS CONTROL AS A CLOCK FACE WITH THE ADJUSTER SET ALL THE WAY COUNTER-CLOCKWISE IT WOULD BE 5:00. A RECOMMENDED SETTING IS 7:00. THIS WOULD BE THE WARMEST SETTING THE MACHINE HAS. A ONE HOUR CHANGE WILL MAKE A NOTICEABLE DIFFERENCE IN PRODUCT CONSISTENCY.

4. When making adjustments to a thicker (colder) setting, dispense approximately 16 ounces (1/2 liter) of product and recheck consistency after the compressor has cycled off.

5. If the consistency is still not correct, repeat steps 2 and 3.

Freezing Cylinder Temperature Adjustment

1. Remove the front electrical box cover.

2. For a colder setting, turn the “Barrel” control adjuster, located at the right top left of the circuit board, counter clockwise. (see figure H)

⚠ CAUTION: THIS CONTROL SETTING IS VERY SENSITIVE SO ALWAYS MAKE SMALL ADJUSTMENTS. IF YOU VISUALIZE THIS CONTROL AS A CLOCK FACE, A ONE HOUR CHANGE WILL MAKE A NOTICEABLE DIFFERENCE IN FREEZING CYLINDER PRODUCT TEMPERATURE. A RECOMMENDED SETTING IS 11:00.

Hopper Temperature Adjustment

1. Remove the front electrical box cover.

For a colder setting, turn the “Hopper” control adjuster, located at the right top left of the circuit board, counter clockwise. (see figure H)

CAUTION: THIS CONTROL SETTING IS VERY SENSITIVE SO ALWAYS MAKE SMALL ADJUSTMENTS. IF YOU VISUALIZE THIS CONTROL AS A CLOCK FACE, A ONE HOUR CHANGE WILL MAKE A NOTICEABLE DIFFERENCE IN HOPPER PRODUCT TEMPERATURE. A RECOMMENDED SETTING IS 11:00.

Care & Cleaning

NOTE: Each time the freezer is disassembled, all internal freezer components must be thoroughly washed, scoured and sanitized using procedures recommended by your local health department. In lieu of local health department recommendations, use a three compartment sink; one compartment to wash parts in detergent, one compartment to rinse, and one to sanitize.

Drain and Rinse

1. If the freezer is empty, proceed to Cleaning Following Complete Disassembly of Unit or Daily Cleaning Procedure. If the freezer is full of product, turn the mode switch to “CLEAN”.
2. On freezers using the optional electric pump and tank assembly and optional Remote Fill Control, turn the switch on the Remote Fill Control to “OFF” and unplug the pump.
3. On freezers using the optional Remote Fill Control and Proportioning Pump, turn off the water valve on the Proportioning pump, using the valve next to the inlet pressure regulator.
4. Open the front dispensing valve and drain all product from the freezer. Close the dispensing valve and turn freezer switches to “OFF”.

NOTE: Use approximately 2-1/2 gallons (10 liters) (per side) of cool water to rinse product out of the freezer.

5. Remove the carb tubes and pour water into the storage hopper. Allow the water to fill the freezing cylinders.
6. Turn the freezer panel switches to “CLEAN” for 5 minutes. Open the dispensing valves and drain the water from the freezer.

Daily Cleaning Procedure

1. Pull out valve handle retaining pin, while supporting the valve plunger from bottom. Push up on the valve plunger and remove the stainless handle. Slide the valve plunger and spring downward to remove. Remove the “O” Rings from the plunger assembly as shown in figure I. Repeat disassembly for the other side.

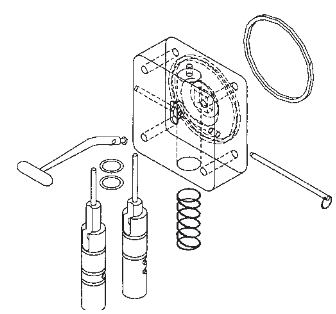


Figure I

NOTE: The best way to remove an “O” Ring is to first wipe off all of the lubricant using a clean paper towel. Pinch the “O” Ring upward with a dry towel between your index finger and thumb. When a loop is formed in the “O” Ring, roll it out of the groove with your other thumb. Always remove the “O” Ring farthest from the end of the plunger first. See figure J.

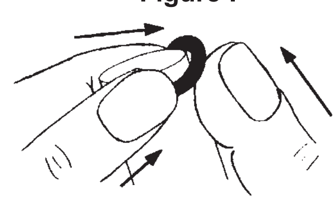


Figure J Ring Removal

2. Take all components to the cleaning area.
3. Carefully inspect the “O” rings and replace if necessary.

Cleaning Carburetor, Dispensing Valve and Plunger Assembly

1. Prepare 1 gallon solution of hot tap water and a good grade of dish washing detergent.
2. Thoroughly wash valve plunger, spring, carburetor assembly and all “O” Rings in detergent solution.

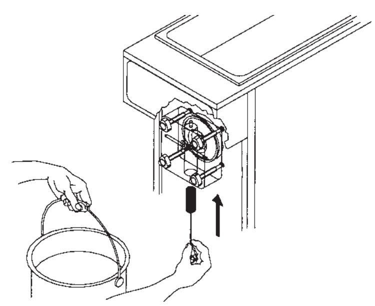


Figure K Clean Valve Body

Care & Cleaning (cont.)

3. Using medium sized brush (supplied with freezer) clean the bottom of the valve body and the inside of the plunger bore with detergent solution taking care to remove all remaining lubricant (see figure K). Repeat for other side.

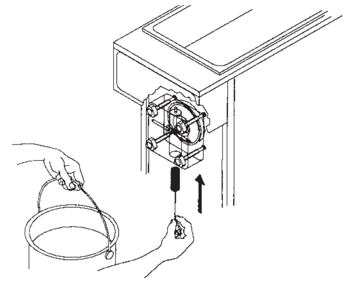


Figure L Sanitize Valve Body

Sanitizing Carburetor and Valve Components

1. Re-assemble carburetor assembly installing the two "O" Rings at the bottom of the carb tube.

2. Place the carburetor assembly in the bottom of the hopper.

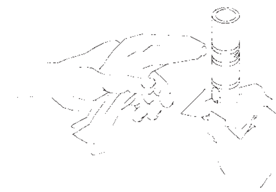


Figure M Lubricate Plunger

3. Replace "O" Rings on valve plunger and lay plunger assembly on a clean piece of paper towel.

4. Prepare a minimum of 4 gallons (15 liters) of sanitizing solution (Stera Sheen Green Label or equivalent) following the manufacturer's instructions.

NOTE: Add 4 ounces of Stera Sheen to 4 gallons (15 liters) of 120° Fahrenheit (50° Centigrade) water to achieve a concentration of 100 parts per million.

5. Dip the medium sized brush (supplied) into the sanitizing solution and sanitize the inside bore of the dispensing valve (see figure L).

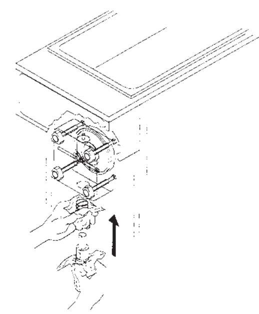


Figure N Installing Plunger and Spring

6. Place a small amount of sanitary lubricant onto a piece of clean paper toweling (see figure M).

7. Use a clean piece of paper toweling to pick up the small end of the valve plunger assembly. Apply the lubricant on the other piece of paper toweling to the "O" Rings on the valve plunger assembly (see figure N).

8. Slide the valve plunger spring over the small end of the valve plunger and, using another clean piece of paper toweling, pick up the valve plunger at the outlet end and insert plunger and spring into the valve body (see figure N).

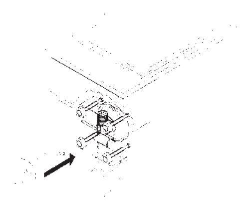


Figure O Insert Valve Handle

9. Push up on the valve plunger and insert the stainless steel handle (see figure O).

10. Insert the dispensing valve handle retaining pin (see figure P). Repeat procedure for other side.

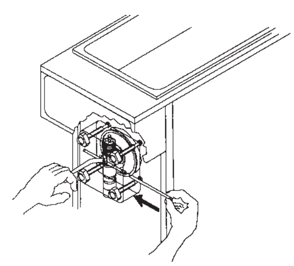


Figure P Insert Retaining Pin

Sanitizing and Refilling

1. Pour sanitizing solution into the mix storage hopper and allow the solution to fill freezing cylinder. Use a large brush (supplied) to sanitize all hopper surfaces (see figure Q).

2. Turn panel switch to "CLEAN" and allow freezer to run for 20 minutes.

3. Open dispensing valve and drain solution. Allow the auger to push remaining sanitizer out of the freezing cylinder.

4. Place a small amount of sanitary lubricant onto another piece of clean paper toweling (see figure R).

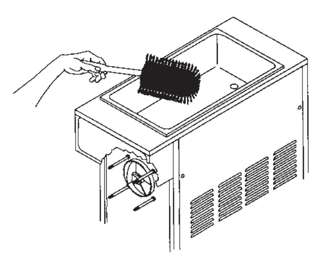


Figure Q Sanitize Hopper

Sanitizing & Refilling (cont.)

5. Use a clean piece of paper toweling to pick up the large end of the carburetor from the bottom of the hopper taking care not to touch the sanitized carburetor with your bare hands.
6. Apply the lubricant on the other piece of paper toweling to the two "O" Rings on the bottom of the carburetor assembly (see figure S).
7. Place the lubricated carburetor assembly on a clean piece of paper toweling.

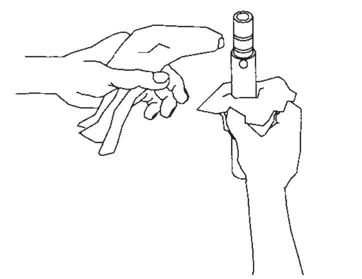


Figure R Lubricate Carb Tube

8. Use either fresh product or mix new product according to manufacturer's instructions.
9. Fill mix storage hopper with product.
10. Open dispensing valve. Pour product into the hopper and allow this product to chase out any remaining sanitizer.
11. Watch the product flowing out of the dispensing valve and close the Valve when the sanitizer remaining in the cylinder has been purged by the new mix.
12. Use a clean piece of paper toweling to insert the sanitized carburetor assembly into the inlet hole in the hopper (see figure T).

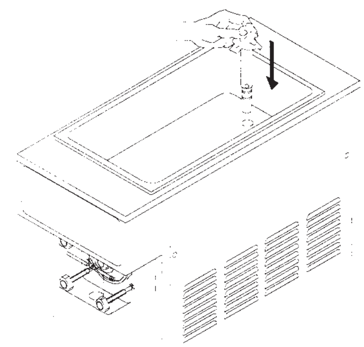


Figure S Carb Tube

13. Fill mix storage hopper with fresh product.
14. Turn front panel switch to "ON". Allow approximately 20 to 30 minutes for the freezer to reach proper consistency. Repeat procedure for other side.

Cleaning Following Complete Disassembly of Unit

1. Remove knobs and carefully remove the front dispensing valve assembly.
2. Disassemble the dispensing valve assembly by removing the retaining pin, pushing up on the plunger assembly and pulling out the handle. This will allow the plunger assembly, complete with O-Rings, to be removed as a unit. Remove the spring. Remove the O-Rings from the plunger assembly and back of the dispensing valve body. (See Figure T.)

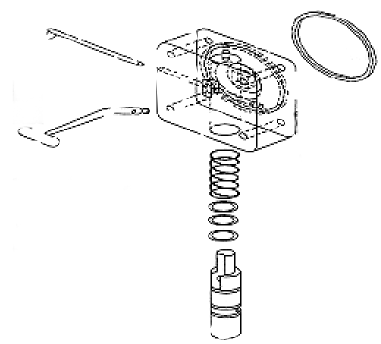


Figure T Exploded View of Dispensing Valve

NOTE: The best way to remove an O-Ring is to first wipe off all of the lubricant using a clean paper towel. Pinch the O-Ring upward with a dry towel between your index finger and thumb. When a loop is formed in the O-Ring, roll it out of the groove with your other thumb. Always remove the O-Ring farthest from the end of the plunger first. (See Figure U).

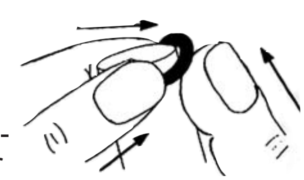


Figure U O-Ring Removal

NOTE: Carefully inspect the O-Rings and replace if necessary.

3. Remove the dasher assembly taking care to avoid damaging the rear seal assembly at the back of the freezing cylinder.
4. Remove stationary portion of the shaft seal assembly from the back end of the freezer cylinder. This is accomplished by reaching into the cylinder and pulling seal out with your index finger. (See Figure V).
5. Slide the rotary seal off the the auger shaft. Inspect both seal components carefully for nicks or cracks. Replace seal if defective.

NOTE: To prevent leakage both surfaces of the seal must be smooth with no chips or cracks. Wash all components in a detergent solution, sanitize and allow to air dry.

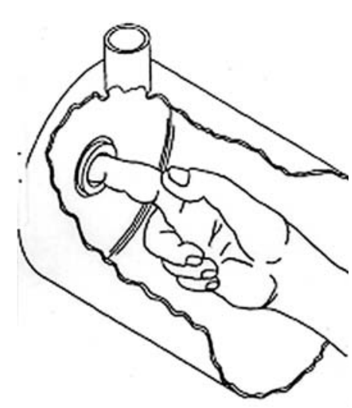


Figure V Remove stationary part of seal

Cleaning Following Complete Disassembly of Unit (cont.)

IMPORTANT: After disassembly, thoroughly scour each part of the freezer in a warm mild detergent solution including the inside of the freezing cylinder and the mix storage hopper. Rinse each part with clean water. Prepare a minimum of 3 1/2 gallons (13 liters) of sanitizing solution (Divorsol CX or equivalent) following the manufacturer's instructions.

NOTE: Add 3 ounces (85.4 mg) of Divorsol CX to 3 1/2 gallons (13 liters) of 120°F (50°C) water to achieve a concentrations of 200 parts per million. Dip or wipe each part in sanitizing solution and allow them to dry on clean paper toweling.

Reassembly

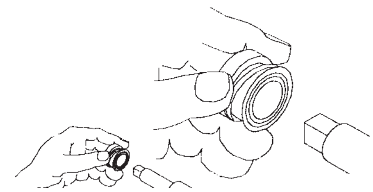


Figure W Re-assemble rotary portion of seal as shown

1. Wet the inner rubber lip of the rotary portion of the seal and the back end of the auger shaft with water. Slide rotary portion of assembly onto the auger shaft, RUBBER FIRST, with the smooth sealing surface toward the back of the auger. *(see figure W)*

2. Insert the stationary portion of the seal into the grooved rubber boot with the polished surface facing out (forward). Lubricate the grooved exterior portion of the boot and insert it straight back into recess at the back of the freezing cylinder, RUBBER FIRST. (*see Figures X & Y)*

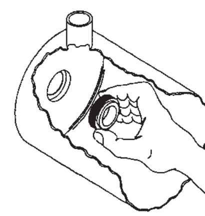


Figure X Installing the stationary portion seal

NOTE: If the circular portion of the seal is white, make sure that the groove is toward the rubber (back of freezer).

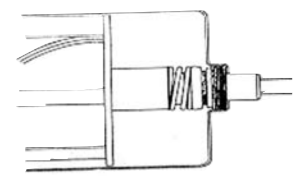


Figure Y Seal Assembly installed correctly

3. Reassemble the dasher assembly, as shown in Figure Z. Insert the larger front and smaller rear white plastic bearings into dasher, then slip in the stator rod. **Carefully and slowly guide the auger into the freezing cylinder taking care not to damage the seal assembly.** Turn auger shaft until it engages the square drive coupling.

4. Reassemble the dispensing valve assembly as shown on Figure AA. Thoroughly wash and sanitize all components, lubricate the inside bore of valve body with a thin film of food grade sanitary lubricant. Reinstall the O-Rings on the plunger assembly and lubricate the entire plunger. Reassemble the valve and replace the retainer pin. Inspect and lubricate the large O-Ring and refit it into the rear of the valve assembly. Install the valve assembly on the front studs and tighten knobs until they are finger tight. ***Do not use tools to tighten knobs***.

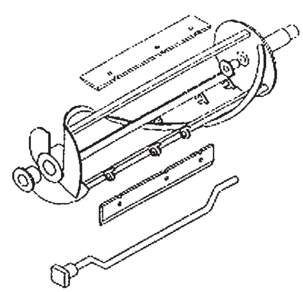
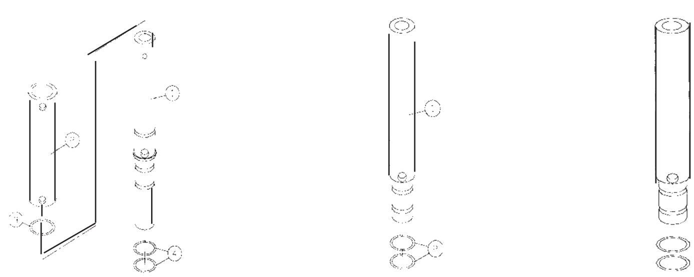


Figure Z

5. Disassemble the carburetor assembly and remove the O-Rings. Wash and sanitize all parts.

6. Reinstall and lubricate the O-Rings and slip on the outer tube if equipped. (See Figure BB.) Repeat reassembly on the other side.

Figure BB



Thick product carb tube (W0471136)

Standard carb tube (W0471076)

Low overrun carb tube (W0472060)

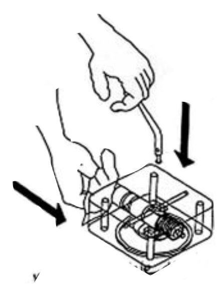


Figure AA

Sanitizing and Refilling

1. Prepare a minimum of 3-1/2 gallons (13 liters) of sanitizing solution (Divorsol CX or equivalent) following the manufacturer's instructions.

NOTE: Add sanitizer to 3-1/2 gallons of water (warm) to achieve a concentration of 200 parts per million.

2. Pour sanitizing solution into the mix storage hopper and allow the solution to fill freezing cylinder. Use a brush to clean the hopper sides and bottom. (Repeat steps 1 & 2 for opposite side.)
3. Turn panel switch to "CLEAN" and allow freezer to run for 5 minutes.
4. Open dispensing valve and drain solution. Turn freezer to "CLEAN" for a few seconds to allow the auger to push remaining sanitizer out of the freezing cylinder.
5. If you are using a concentrated product, mix the product according to the manufacturer's instructions.
6. Open dispensing valve. Pour product into the hopper and allow this product to chase out any remaining sanitizer. Watch the product flowing out of the dispensing valve and close the valve when the new mix has purged the sanitizer remaining in the cylinder.
7. Sanitize and install the carburetor. (Figure R). Refill mix hopper.
8. Turn front panel switch to "ON". Allow approximately 20 to 30 minutes for the freezer to reach proper consistency. Repeat on other side.

Maintenance

⚠ **WARNING! Disconnect power for maintenance. Do not attempt to perform maintenance on the freezer until electrical power has been disconnected.**

Suggested Weekly Maintenance

1. Clean, lubricate and sanitize the freezer following guidelines in Care and Cleaning on page 11.
2. Clean the exterior of the freezer using a soft wet cloth.

Suggested Monthly Maintenance

How to Clean Exposed Filter:

1. Slide exposed filter out of the rails by pulling forward on the filter. It is recommended to remove the filter by using the palm of your hand and applying even pressure to the face of the filter.
2. Clean filter with liquid soap and water.
3. Soak filter for 15 minutes.
4. Rinse filter with heavy stream of water, opposite the direction of air flow. Allow filter to dry.
5. Slide the filter into the rails until the filter contacts the stop on the top rail.

How to Clean Concealed Filter:

1. For concealed filters lift lid and pull up on filter tab to remove filter.
2. Clean filter with liquid soap and water.
3. Soak filter for 15 minutes.
4. Rinse filter with heavy stream of water, opposite the direction of air flow. Allow filter to dry.
5. Slide filter into top of filter cover with removal clip up and the air flow arrows facing the existing panel.

⚠ **CAUTION: Disconnect power for maintenance. Do not attempt to perform maintenance on the freezer until electrical power has been disconnected.**

How to Clean Condenser

NOTE: Loss of refrigeration efficiency will result if condenser is allowed to become dirty. Excessive compressor run time or loss of capacity is a good indication that the condenser needs to be cleaned.

1. **Disconnect electrical power.**
2. Remove side panels.
3. Place a damp towel over the side of condenser opposite the fan motor.
4. Use compressed air or CO_2 to blow out dirt from the fan side of the condenser.
5. An alternate cleaning method is to use a condenser brush and a vacuum cleaner.

⚠ **CAUTION: Procedure can create a loud noise.**

Annual Maintenance

1. Disconnect electrical power.
2. Clean condenser.
3. Remove dispensing valve assembly and replace all “O” Rings. (See Care and Cleaning)
4. Remove dasher assembly, inspect stator bearings and replace shaft seal set. (See Care and Cleaning)
5. Remove rear panel and inspect “V” belt.
6. Inspect the drive shaft square hole for wear (rounding out).
7. Check drive shaft and motor shaft bearings for excessive wear.
8. Replace side and back panels. Re-connect power supply.

Belt Adjustment

⚠ **CAUTION: UNPLUG THE MACHINE BEFORE PERFORMING ANY ADJUSTMENTS. THIS PROCEDURE MUST BE DONE BY A QUALIFIED TECHNICIAN.**

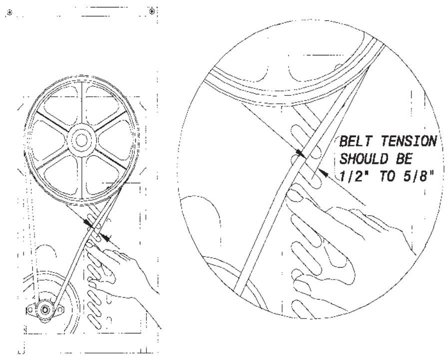


Figure CC

Check the belt tension. The proper belt deflection is 1/2" over all. If the deflection is more than 1/2" the motor will need to be lowered. If the deflection is less than 1/2" the motor will need to be raised. Follow this procedure to adjust the motor to achieve proper belt tension.

1. Unplug the machine and remove both side and the rear panels.
2. Locate the motor flange bearings. These are the pillow block bearings that hold the motor to the cradle. The motor is double shafted and the shaft extends through a bearing on each end. The bearing is held to the motor-cradle by two allen bolts on each bearing.
3. Loosen the allen bolts on each bearing. Do not loosen the setscrews that hold the bearing collar to the motor shaft.
4. Lower the motor or raise the motor as needed. The motor must be kept level from front to back. Do not lower or raise only one end of the motor. This will result in excessive belt wear and belt noise.
5. Tighten all four allen bolts down. Align the motor pulley with the top pulley if needed.
6. The motor pulley should be in alignment with the large (driven) top pulley. Use a straight edge along the top pulley.
7. If the pulleys are not in alignment, remove the setscrew from the motor pulley and move either in or out as needed.
8. Reinstall the setscrew. Use non-permanent loc-tite on the setscrew and tighten it back down on the motor shaft. Please be sure the setscrew is tightened down flat on the motor shaft.
9. Return the unit back to service.

Freezer Specifications

MODEL 5512

Circuit NEMA #	6-2OR
Electrical	208 volt, 60 Hz, 1 Phase Dedicated 20 Amp circuit
Drive Motor	1/2 hp, Capacitor Start / Run
Compressor	1 hp
Cooling	Air Cooled
Actual Weight	260 lbs. (118 kg)
Mix Hopper Capacity	3 gallons (11.35 liters) per side
Freezing Cylinder Cap.	1 1/2 gallons (5.7 liters) per side
Refrigerant	See Serial Number Plate
Refrigerant Charge	See Serial Number Plate
High Side (approximate operating pressure)	275 to 350psi (19 to 25 k/cm)
Low Side (approximate operating pressure)	35psi (2.5 k/cm)
High Side Design Pressure)	520psi
Low Side Design Pressure)	174psi

Freezer Specifications

MODEL 5512E

Circuit NEMA #	NA
Electrical	220/240 volt, 50Hz, 1 Phase Dedicated 16 Amp circuit
Drive Motor	1/2 hp
Compressor	1 hp
Cooling	Air Cooled
Weight	260 lbs. (118 kg)
Mix Hopper Capacity	3 gallons (11.35 liters) per side
Freezing Cylinder Cap.	1.5 gallons (5.7 liters) per side
Refrigerant	See Serial Number Plate
Refrigerant Charge	See Serial Number Plate
High Side (approximate operating pressure)	275 to 350psi (19 to 25 k/cm)
Low Side (approximate operating pressure)	35psi (2.5 k/cm)
High Side Design Pressure	520psi
Low Side Design Pressure	174psi

Part Description	Monthly	Every 3 Months	Every 6 Months	Annually	Quantities to be Replaced
Shaft seal				Inspect & replace if necessary	2
Drive shaft				Inspect & replace if necessary	2
Drive belts				Inspect & replace if necessary	2
Scraper blades on dasher			Inspect & replace if necessary		4
Square cut o-ring on valve body/face plate				Inspect & replace if necessary	2
Front stator flange bearing				Inspect & replace if necessary	2
Rear stator flange bearing				Inspect & replace if necessary	2
Dispense valve o-rings		X			Thick Product plunger:4 Standard Product plunger:6
Carb tube o-rings		X			4 or 6
Cleaning brush			Inspect & replace if necessary	Maximum	1
Condenser		Inspect & clean if necessary		Maximum	1

Refer to the Crathco Frozen Beverage Parts Price List when ordering the above parts

Troubleshooting Guide

⚠ **Only a qualified service technician should perform electrical and mechanical adjustments or repairs. Always disconnect power before attempting any maintenance procedures.**

PROBLEM	PROBABLE CAUSE	SOLUTION
Freezer will not run or freeze down	Freezer not plugged in	Plug in machine
	Circuit breaker tripped or fuse blown	Reset breaker or replace fuse
	Freezer in "CLEAN" position	Switch to "FREEZE"
	Dasher or blades not installed	Install dasher and blades
	Obstructed cooling air flow	Allow 6"(15cm) on sides
	Freezer in Standby mode	Switch to "FREEZE"
Product too soft	Improper consistency control setting	Readjust consistency control
	Mix soft, no overrun	Product broken down Drain and refill with fresh mix
	Carburetor set incorrectly	Readjust carburetor
	Extended non-draw period	Use "STANDBY" during slow business periods
	Improper product taste	Check date code. Use only fresh mix
	Used rerun/leftover mix	Use only fresh mix
	Frozen product too fluffy and icy (Product frozen too long, low draw)	Draw out 1 quart (1 liter), dispose of product. Allow product to refreeze.
Frozen product too stiff, or freezer runs continuously	Consistency control set too firm	Readjust consistency control
	Dispensing valve not fully closed	Close valve, lubricate properly
Frozen product not dispensing	Power switch OFF	Turn Power Switch to ON
	Insufficient mix in storage hopper, light on, beeper	Refill storage hopper
	Carburetor in off position, between holes	Set carburetor to proper hole size
	Carburetor inlet hole clogged	Unclog carburetor
	Foam buildup, liquid mix cannot feed properly	Remove foam from hopper using sanitized utensil
	Drive belt broken or off of pulley	Replace or repair
	Machine in STANDBY mode	Set switch to FREEZE
Liquid coming out of drain tube, front of freezer	Worn, defective or improperly installed seal	Replace and lubricate per manual

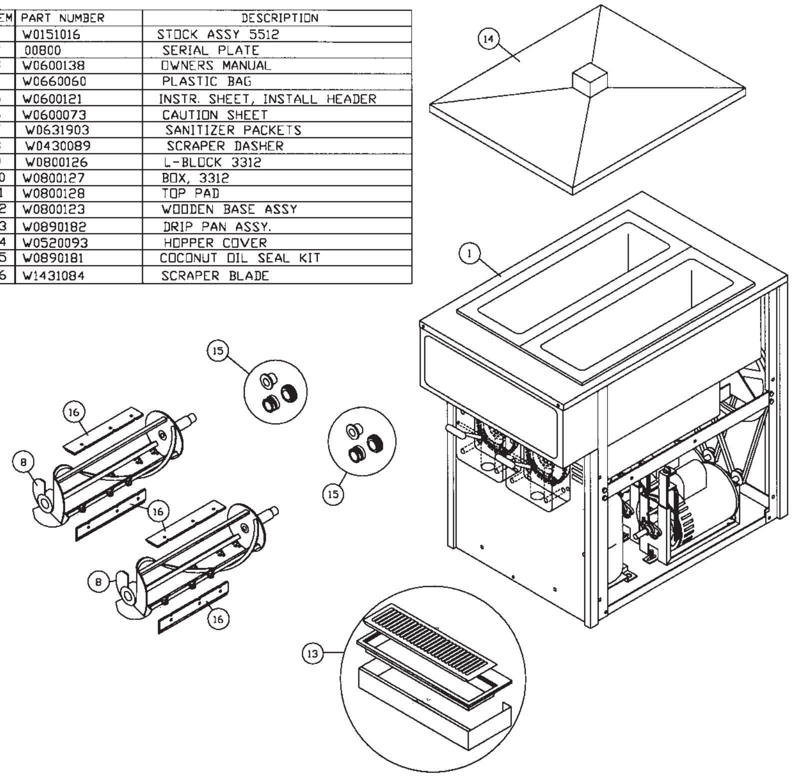
PROBLEM	PROBABLE CAUSE	SOLUTION
Excessive dispensing valve leakage	Worn or defective O-Rings	Replace and lubricate at each cleaning
Scraping sound during freeze down	Frozen product scraping off of cylinder walls	Normal sound during freeze down, goes away when product is frozen to proper consistency
Clicking sound	Low voltage	Connect freezer to dedicated circuit of proper rating
	Extension cord or improperly sized electrical wire	Connect freezer directly to power source using properly sized wiring.
Thumping sound from inside freezer	Worn drive belt	Replace belt

If you still need help, call our service department at (800) 695-4500 (USA & Canada only) or (502) 425-4776 (Monday through Friday, 8 am - 8 pm EST) or an authorized service center in your area. Please have the model and serial numbers ready so that accurate information can be given.

Prior authorization must be obtained from Grindmaster Corporation's Technical Services Department for all warranty claims.

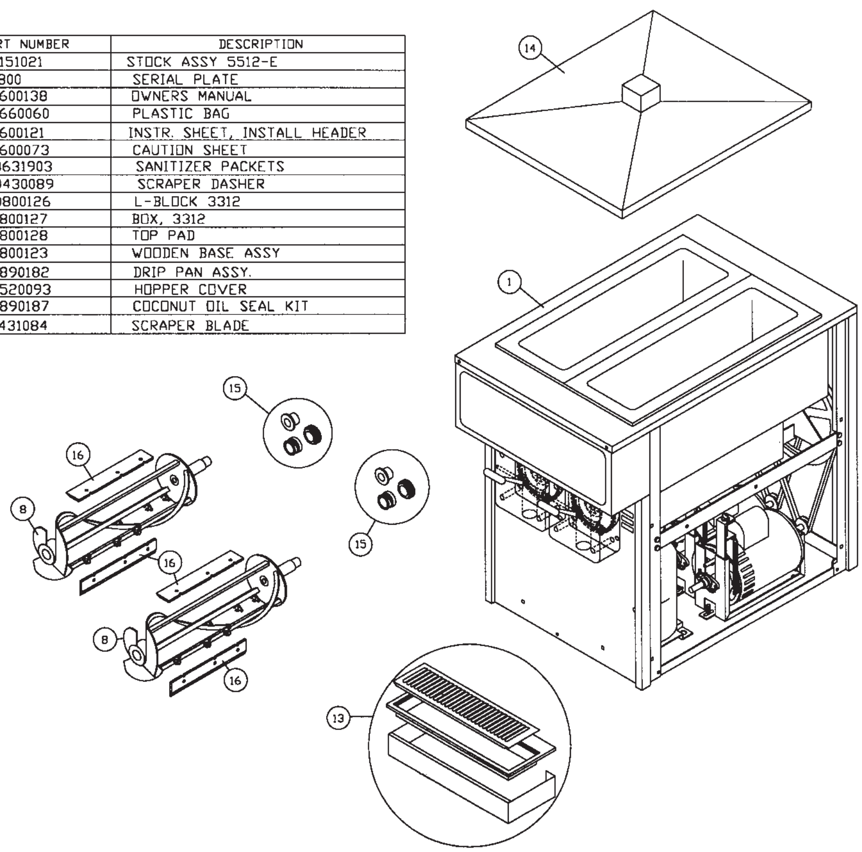
Exploded View Model 5512 Final Assembly

ITEM	PART NUMBER	DESCRIPTION
1	W0151016	STOCK ASSY 5512
2	00800	SERIAL PLATE
3	W0600138	OWNERS MANUAL
4	W0660060	PLASTIC BAG
5	W0600121	INSTR. SHEET, INSTALL HEADER
6	W0600073	CAUTION SHEET
7	W0631903	SANITIZER PACKETS
8	W0430089	SCRAPER DASHER
9	W0800126	L-BLOCK 3312
10	W0800127	BOX, 3312
11	W0800128	TOP PAD
12	W0800123	WOODEN BASE ASSY
13	W0890182	DRIP PAN ASSY.
14	W0520093	HOPPER COVER
15	W0890181	COCONUT OIL SEAL KIT
16	W1431084	SCRAPER BLADE

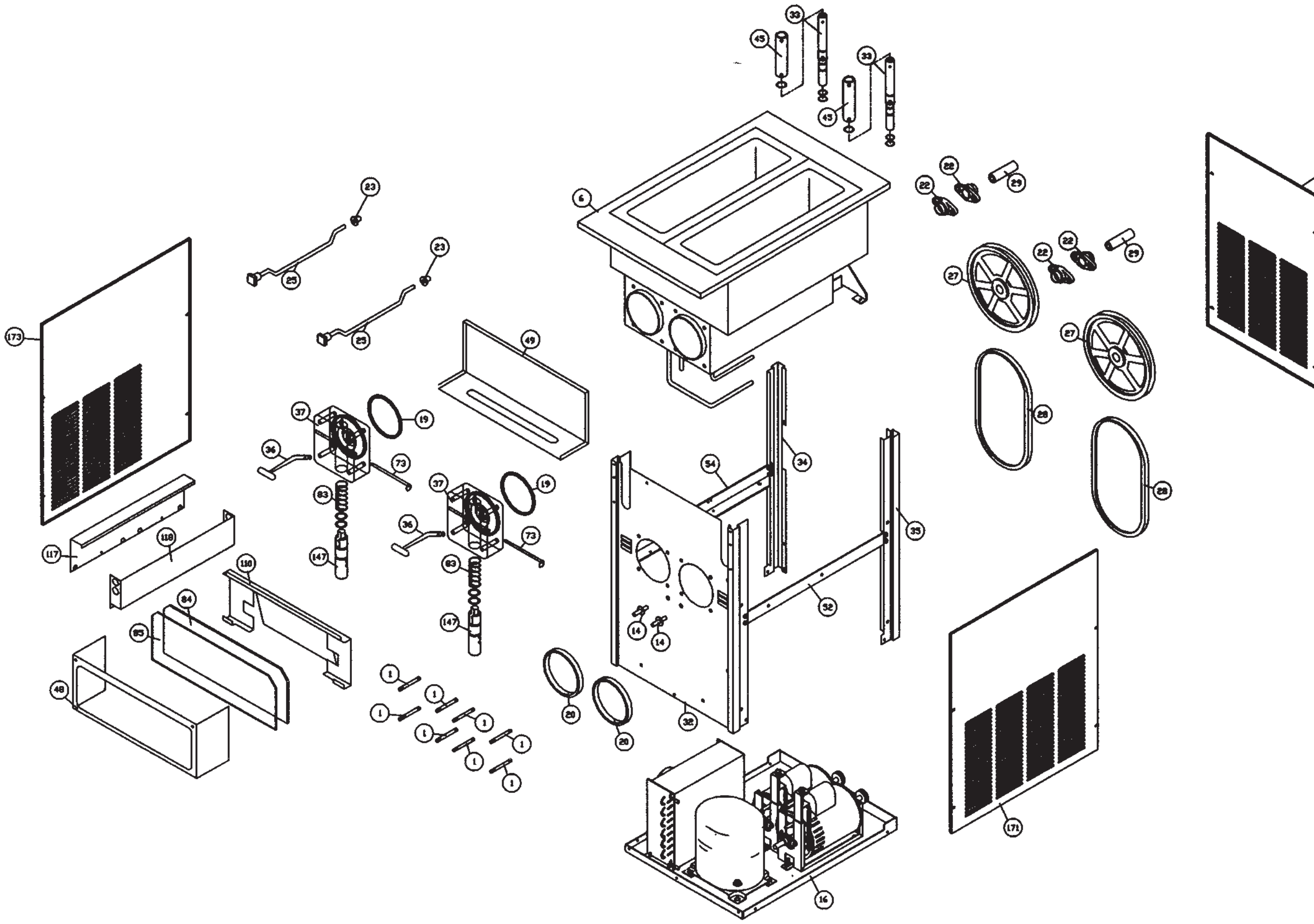


Exploded View Model 5512-E Final Assembly

ITEM	PART NUMBER	DESCRIPTION
1	W0151021	STOCK ASSY 5512-E
2	00800	SERIAL PLATE
3	W0600138	OWNERS MANUAL
4	W0660060	PLASTIC BAG
5	W0600121	INSTR. SHEET, INSTALL HEADER
6	W0600073	CAUTION SHEET
7	W0631903	SANITIZER PACKETS
8	W0430089	SCRAPER DASHER
9	W0800126	L-BLOCK 3312
10	W0800127	BOX, 3312
11	W0800128	TOP PAD
12	W0800123	WOODEN BASE ASSY
13	W0890182	DRIP PAN ASSY.
14	W0520093	HOPPER COVER
15	W0890187	COCONUT OIL SEAL KIT
16	W1431084	SCRAPER BLADE



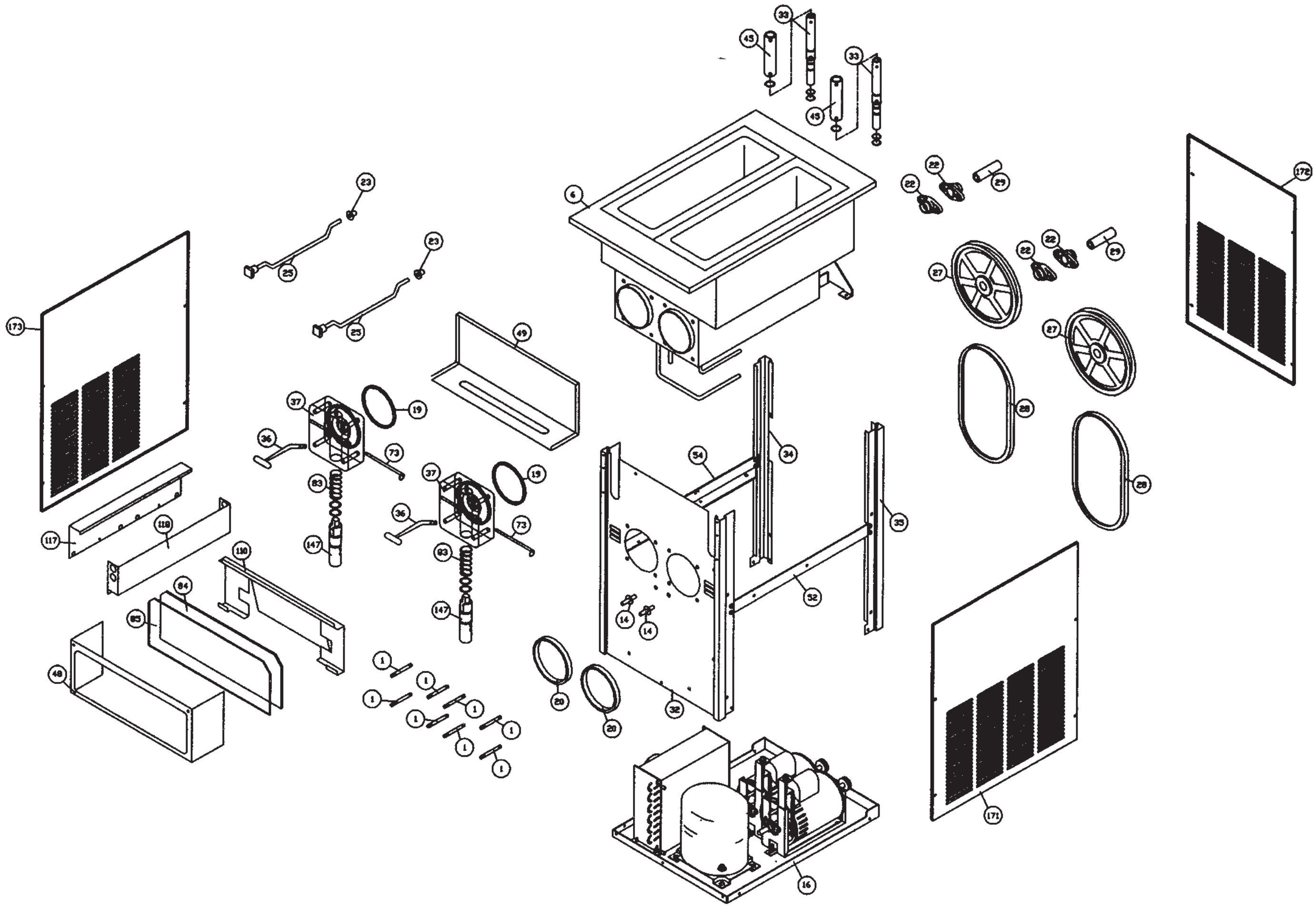
Exploded View Model 5512 Stock Assembly



Item	Part Number	Description
173	W0520081	PANEL, LH
172	W0520080	PANEL, REAR
171	W0520082	PANEL, RH
147	W0572411	LEFT ELEC. BOX HARNESS
118	W0572371	RELAY BOX
117	W0572372	RELAY BOX COVER
110	W0572358	LIGHT REFLECTOR
85	W0631621	FRONT DISPLAY LENS CLEAR
84	W0631620	FRONT DISPLAY LENS
83	W0631230	VALVE SPRINGS
73	W0611728	FAS PIN
54	W0211213	LH CENTER SHELF ANGLE
52	W0211212	RH CENTER SHELF ANGLE
48	W0572298	ELECTRICAL BOX COVER
45	W0471134	SLEEVE STANDPIPE
37	W0480450	VALVE BODY
36	W0480445	VALVE HANDLE

Item	Part Number	Description
35	W0211206	RH FRAME LEG
34	W0211205	LH FRAME LEG
33	W0471128	CARBORATOR ASSY
32	W0211225	FRONT PANEL 5512
29	W0451067	SLUSH DRIVE SHAFT
28	W0450209	BELTS
27	W0450053	SHEAVE
25	W0430028	STATOR WELDMENT
23	W0430024	BLIND FLANGE BEARING
22	W0380025	FLANGE BEARING
20	W0340058	BARREL GASKET
19	W0340055	O-RING FOR VALVE BODY
16	W0211224	BASE ASSEMBLY
15	W0650913	CIRCUIT BOARD
14	W0211112	DRAIN TUBE FITTING
6	W0201427	EVAPORATOR FOAM ASSY.
1	W0110013	VALVE STUDS

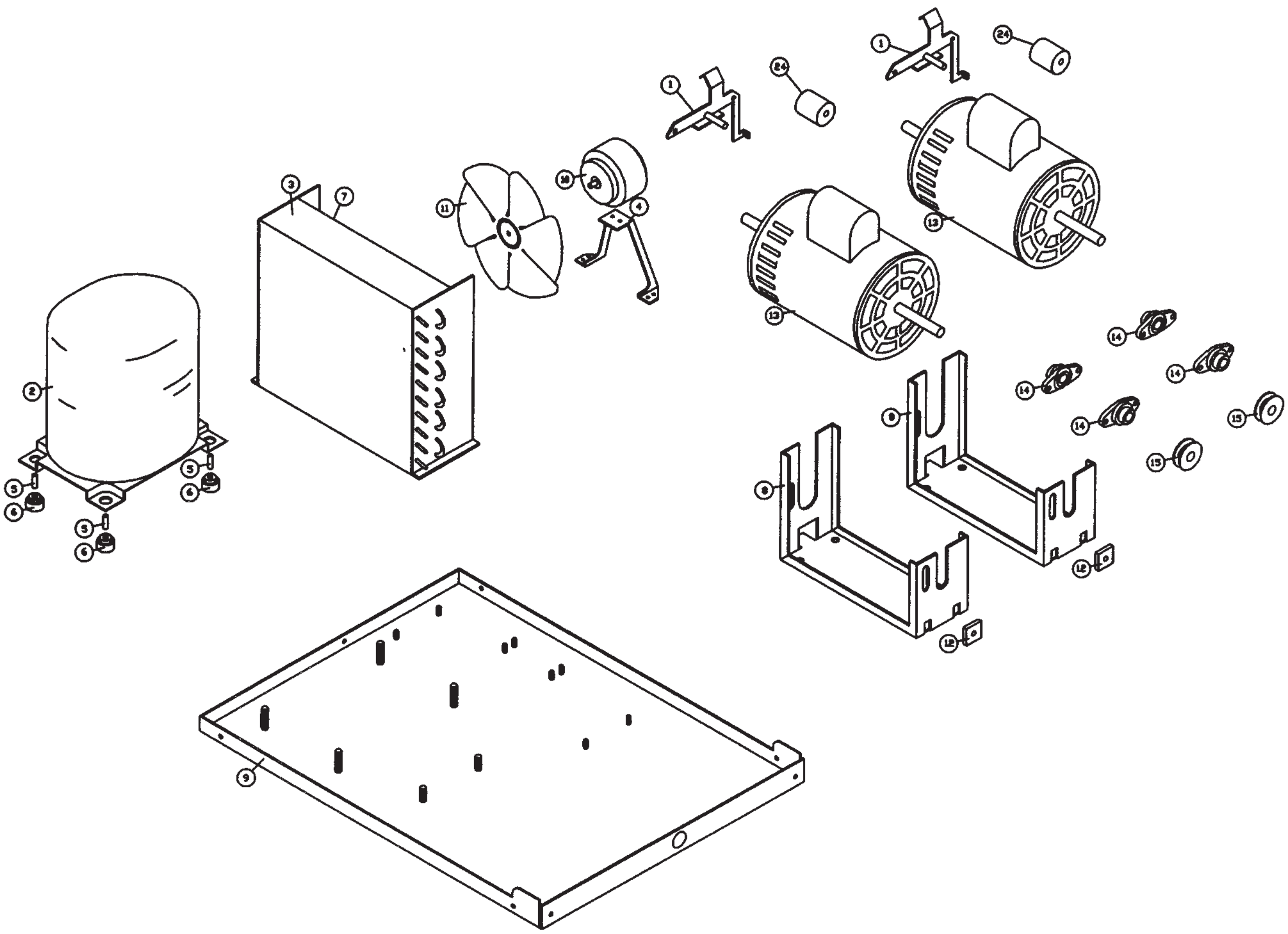
Exploded View Model 5512-E Stock Assembly



Item	Part Number	Description
173	W0520083	PANEL, LH
172	W0520084	PANEL, REAR
171	W0520082	PANEL, RH
147	W0572411	LEFT ELEC. BOX HARNESS
118	W0572371	RELAY BOX
117	W0572372	RELAY BOX COVER
110	W0572358	LIGHT REFLECTOR
85	W0631621	FRONT DISPLAY LENS CLEAR
84	W0631620	FRONT DISPLAY LENS
83	W0631230	VALVE SPRINGS
73	W0611728	FAS PIN
54	W0211213	LH CENTER SHELF ANGLE
52	W0211212	RH CENTER SHELF ANGLE
48	W0572298	ELECTRICAL BOX COVER
45	W0471134	SLEEVE STANDPIPE
37	W0480450	VALVE BODY
36	W0480445	VALVE HANDLE

Item	Part Number	Description
35	W0211206	RH FRAME LEG
34	W0211205	LH FRAME LEG
33	W0471128	CARBORATOR ASSY
32	W0211225	FRONT PANEL 5512
29	W0451067	SLUSH DRIVE SHAFT
28	W0450209	BELTS
27	W0450053	SHEAVE
25	W0430028	STATOR WELDMENT
23	W0430024	BLIND FLANGE BEARING
22	W0380025	FLANGE BEARING
20	W0340058	BARREL GASKET
19	W0340055	O-RING FOR VALVE BODY
16	W0211229	BASE ASSEMBLY
15	W0650913	CIRCUIT BOARD
14	W0211112	DRAIN TUBE FITTING
6	W0201427	EVAPORATOR FOAM ASSY.
1	W0110013	VALVE STUDS

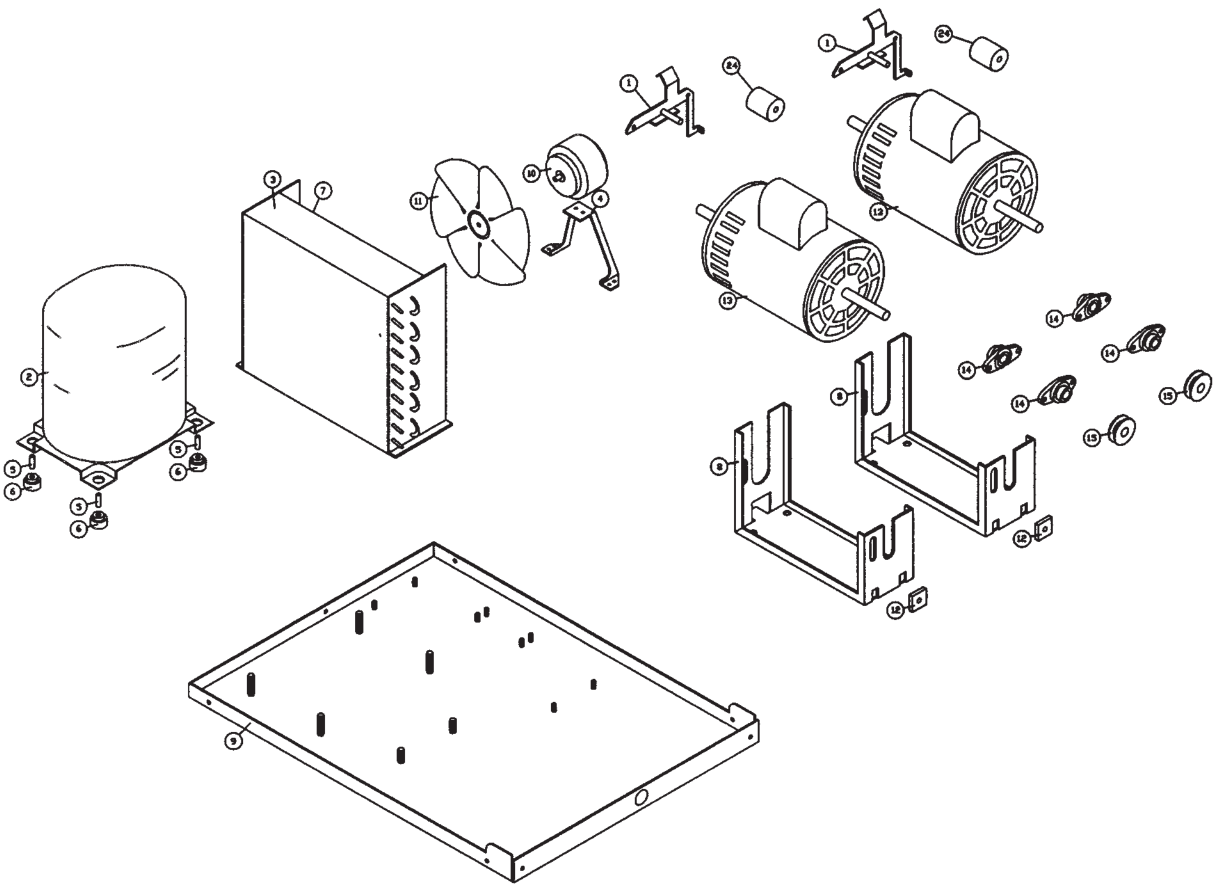
Exploded View Model 5512 Base Assembly



Item	Part Number	Description
24	W0340111	RUBBER BUMPER
23	W0611246	1/4 LOCKWASHER
22	W0611235	3/16 FLAT WASHER
21	W0611082	5/16-18 FLANGE NUT
20	W0611074	1/4-20 HEX NUT
19	W0611055	10-24 HEX NUT
18	W0610559	1/4-20 X 1 CAP SCREW
17	W0610264	10-24 X 1/4 TRUSS HD.
16	W0610110	#8 X 3/8 PAN HD.
15	W0451000	PULLEY
14	W0380009	FLANGE BEARING
13	W0321022	MOTOR ASSEMBLY

Item	Part Number	Description
12	W0321013	MOTOR ADJ. NUT
11	W0320221	FAN BLADE
10	W0320220	FAN MOTOR
9	W0211204	FRAME BOTTOM PLATE
8	W0210169	MOTOR CRADLE
7	W0201080	FAN SHROUD
6	W0200413	COMPRESSOR GROMMET
5	W0200412	COMPRESSOR SPACER
4	W0200411	FAN MOUNT BRACKET
3	W0200256	CONDENSER
2	W0200133	COMPRESSOR
1	W0321025	MOTOR STOP BRACKET

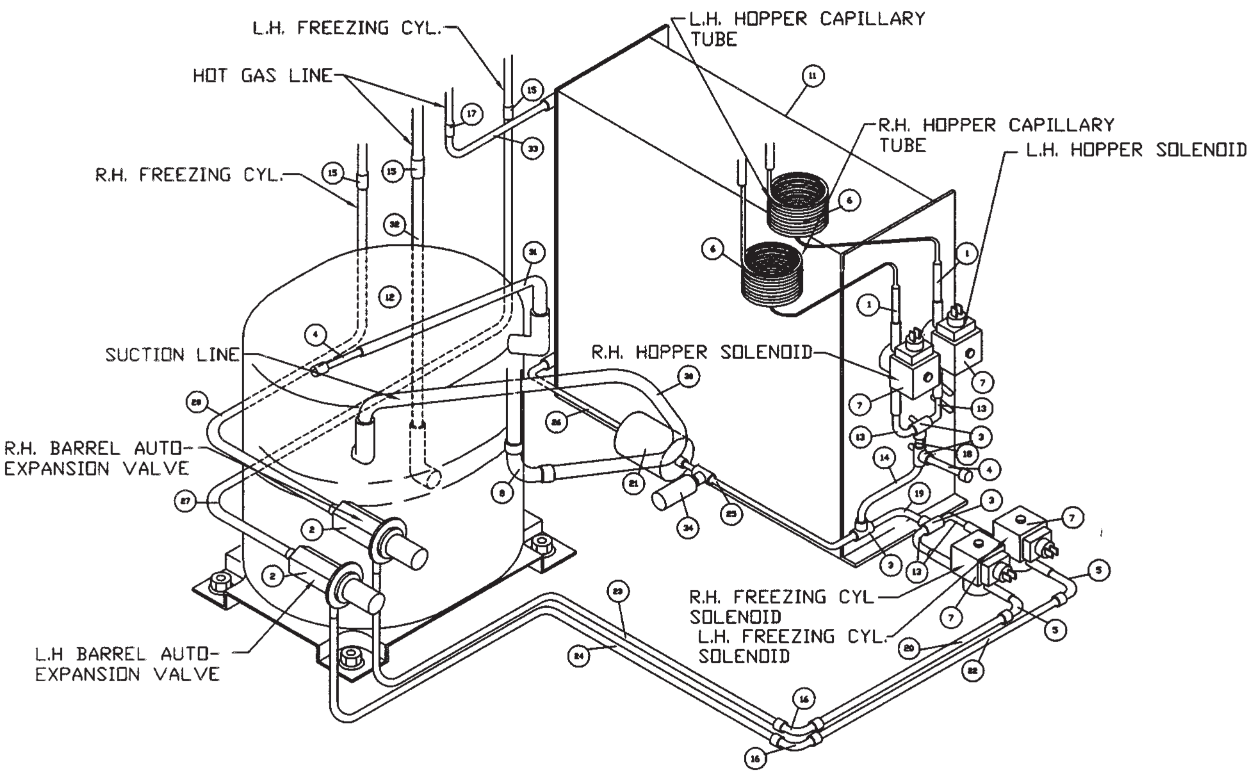
Exploded View Model 5512-E Base Assembly



Item	Part Number	Description
24	W0340111	RUBBER BUMPER
23	W0611246	1/4 LOCKWASHER
22	W0611235	3/16 FLAT WASHER
21	W0611082	5/16-18 FLANGE NUT
20	W0611074	1/4-20 HEX NUT
19	W0611055	10-24 HEX NUT
18	W0610559	1/4-20 X 1 CAP SCREW
17	W0610264	10-24 X 1/4 TRUSS HD.
16	W0610110	#8 X 3/8 PAN HD.
15	W0451000	PULLEY
14	W0380009	FLANGE BEARING
13	W0321023	MOTOR ASSEMBLY

Item	Part Number	Description
12	W0321013	MOTOR ADJ. NUT
11	W0320221	FAN BLADE
10	W0320216	FAN MOTOR
9	W0211204	FRAME BOTTOM PLATE
8	W0210169	MOTOR CRADLE
7	W0201080	FAN SHROUD
6	W0200413	COMPRESSOR GROMMET
5	W0200412	COMPRESSOR SPACER
4	W0200411	FAN MOUNT BRACKET
3	W0200256	CONDENSER
2	W0200134	COMPRESSOR
1	W0321025	MOTOR STOP BRACKET

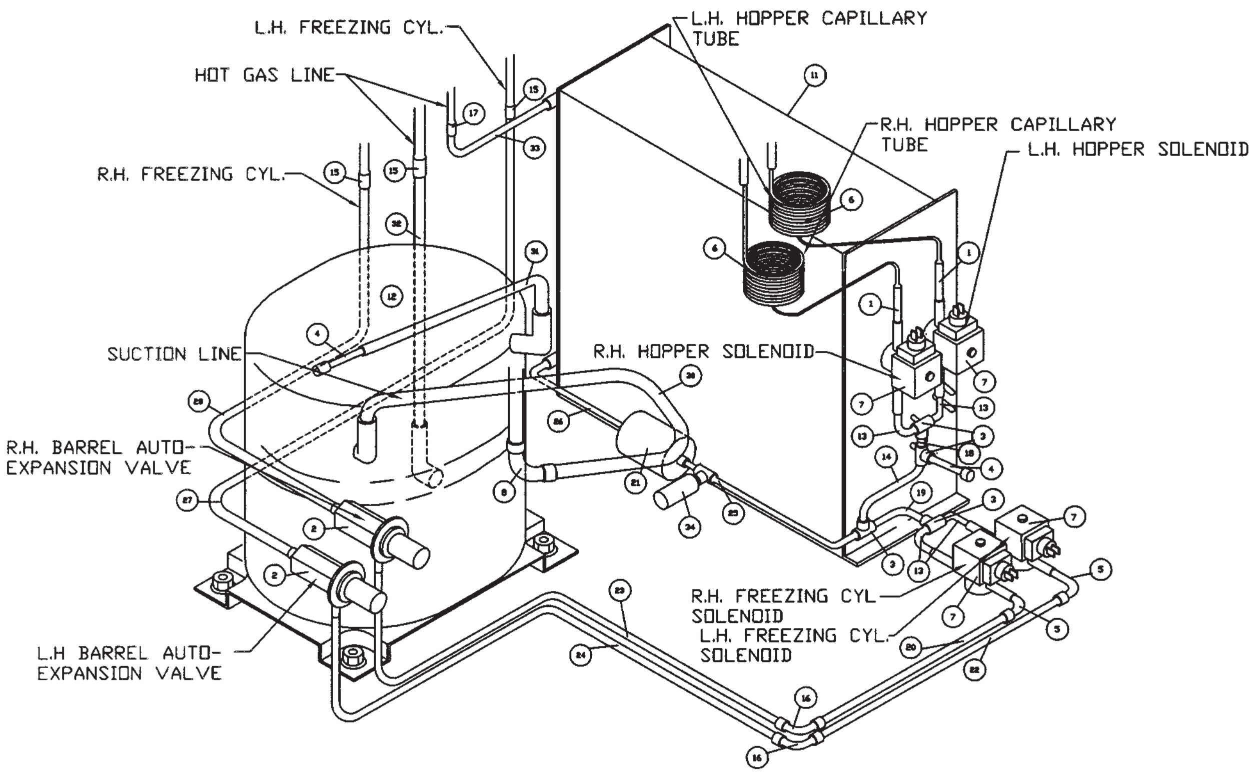
Exploded View Model 5512 Base Assembly Refrigeration



Item	Part Number	Description
34	W0650428	HIGH PRESSURE CUTOUT, 500#
33	W0201417	HOT GAS LINE 1/4”
32	W0201416	HOT GAS LINE 3/8”
31	W0201415	ACCESS VALVE LINE
30	W0201414	SUCTION LINE
28	W0201412	R.H. EXPANSION VALVE LINE
27	W0201411	EXPANSION VALVE LINE
26	W0201410	CONDENSER/DRIER LINE
25	W0201409	DRIER LINE
24	W0201408	L.H. EXP. VALVE LINE
23	W0201407	R.H. EXP. VALVE LINE
22	W0201406	L.H. SOLENOID LINE
21	W0650112	FILTER DRIER
20	W0201405	R.H. SOLENOID LINE
19	W0201404	BARREL SOLENOID LINE
18	W0201403	HOPPER SOLENOID LINE

Item	Part Number	Description
17	W0620101	1/4” COUPLING
16	W0620110	1/4” ELBOW
15	W0620103	3/8” STRAIGHT COUPLE
14	W0201402	FILTER/HOPPER SOLE LINE
13	W0201401	SOLENOID ELL’S.
12	W0200133	COMPRESSOR
11	W0200256	CONDENSER
9	W0620125	1/2” STRAIGHT COUPLING
8	W0620127	1/2” COPPER ELBOW
7	W1650002	SOLENOID VALVES
6	W0200314	CAPILLARY TUBE
5	W0620105	1/4” STREET ELBOW
4	W0650501	ACCESS VALVE
3	W0620102	1/4 X 1/4 X 1/4 TEE
2	W0650104	AUTOMATIC EXPANSION VALVES
1	W0201400	CAPILLARY CONNECTORS

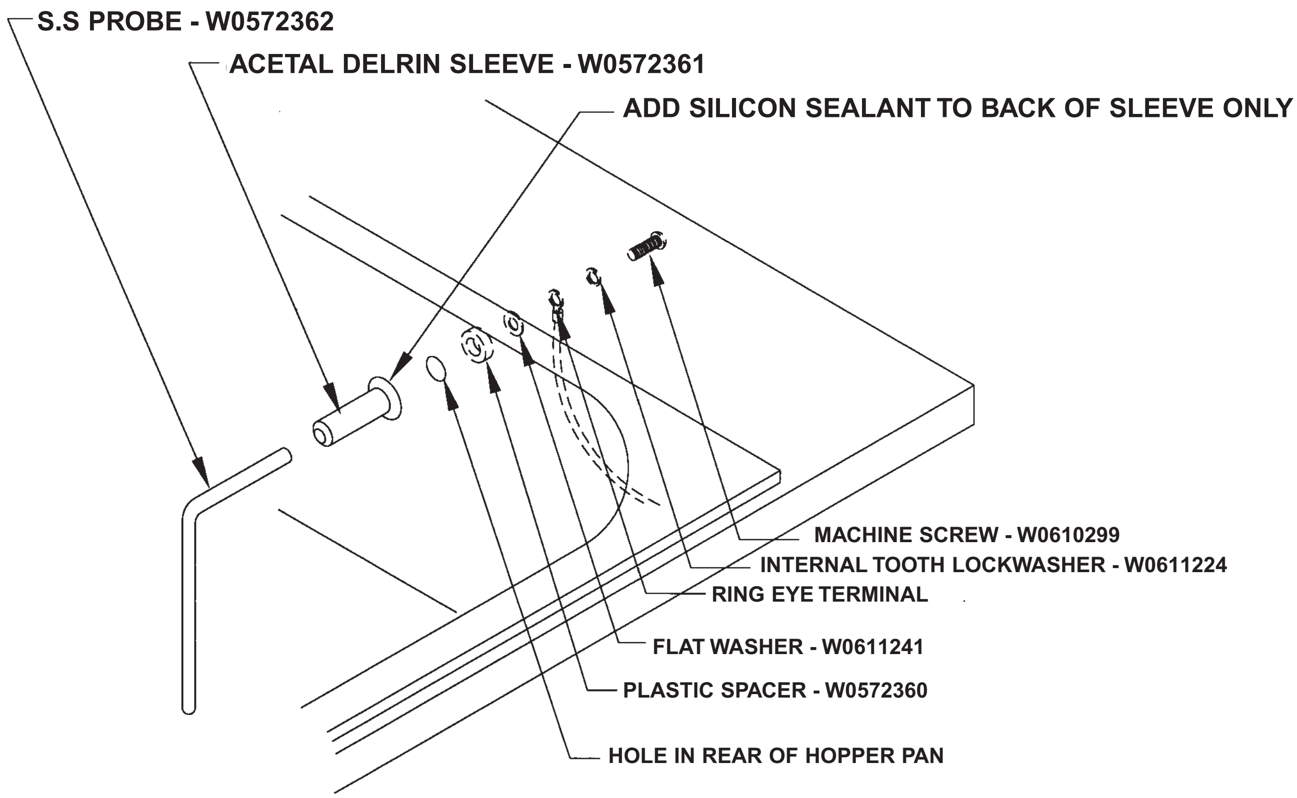
Exploded View Model 5512 Base-E Assembly Refrigeration



Item	Part Number	Description
34	W0650428	HIGH PRESSURE CUTOUT, 500#
33	W0201417	HOT GAS LINE 1/4”
32	W0201416	HOT GAS LINE 3/8”
31	W0201415	ACCESS VALVE LINE
30	W0201414	SUCTION LINE
28	W0201412	R.H. EXPANSION VALVE LINE
27	W0201411	EXPANSION VALVE LINE
26	W0201410	CONDENSER/DRIER LINE
25	W0201409	DRIER LINE
24	W0201408	L.H. EXP. VALVE LINE
23	W0201407	R.H. EXP. VALVE LINE
22	W0201406	L.H. SOLENOID LINE
21	W0650112	FILTER DRIER
20	W0201405	R.H. SOLENOID LINE
19	W0201404	BARREL SOLENOID LINE
18	W0201403	HOPPER SOLENOID LINE

Item	Part Number	Description
17	W0620101	1/4” COUPLING
16	W0620110	1/4” ELBOW
15	W0620103	3/8” STRAIGHT COUPLE
14	W0201402	FILTER/HOPPER SOLE LINE
13	W0201401	SOLENOID ELL’S.
12	W0200134	COMPRESSOR
11	W0200256	CONDENSER
9	W0620125	1/2” STRAIGHT COUPLING
8	W0620127	1/2” COPPER ELBOW
7	W1650002	SOLENOID VALVES
6	W0200314	CAPILLARY TUBE
5	W0620105	1/4” STREET ELBOW
4	W0650501	ACCESS VALVE
3	W0620102	1/4 X 1/4 X 1/4 TEE
2	W0650104	AUTOMATIC EXPANSION VALVES
1	W0201400	CAPILLARY CONNECTORS

Exploded View Probe Assembly



CRATHCO MACHINE ASSEMBLY

CHECK LIST

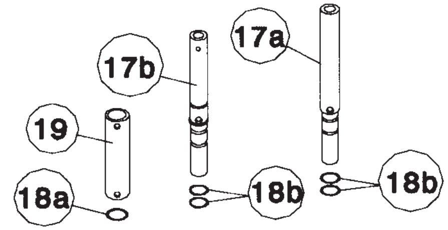
Do not cover ventilation grill on sides of machine.
Read equipment instructions before handling parts.

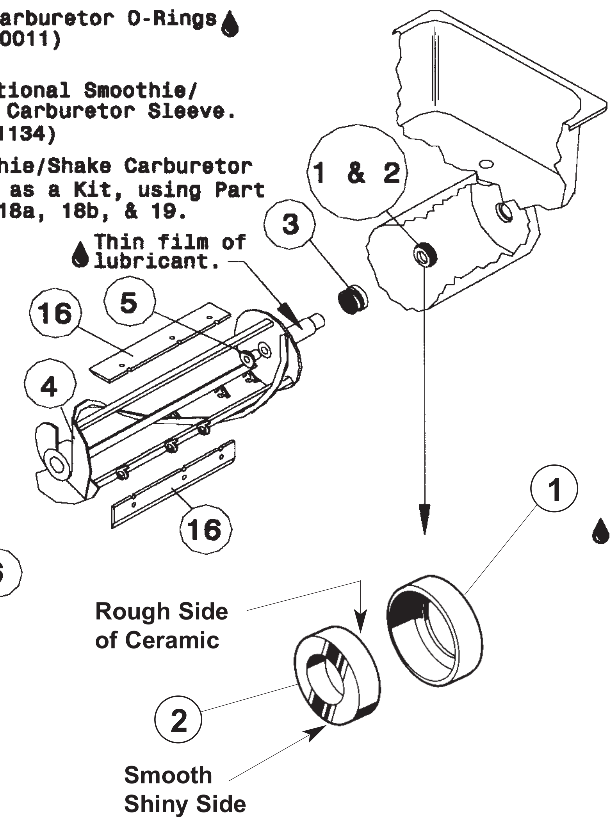
- ☐ 1 Stationary Seal Rubber Part 💧
- ☐ 2 Stationary Seal Ring
- ☐ 3 Spring Seal

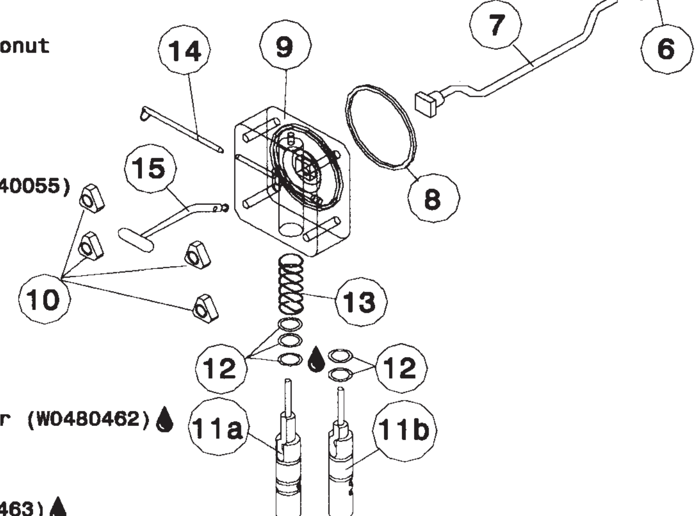
Coconut Oil Seal (W0340210) includes 1,2,& 3. Optional Standard Seal (W0340201) also viewed as 1,2,& 3.

- ☐ 4 Dasher (W0430089)
- ☐ 5 Plastic Rear Bearing (W0430024)
- ☐ 6a Plastic Front Bearing Standard (W0430032)
- ☐ 6b Plastic Front Bearing Coconut (W0430033)
- ☐ 7 Stator Rod (W0430028)
- ☐ 8 Face Plate Quad Ring (W0340055)
- ☐ 9 Valve Body (W0480450)
- ☐ 10 Valve Knobs (W0630711)
- ☐ 11a Electronic Slush Plunger (W0480462) 💧
- ☐ 11b Smoothie Plunger (W0480463) 💧
- ☐ 12 Plunger O-Rings 💧 (W0340022)
- ☐ 13 Plunger Spring (W0631242)
- ☐ 14 Valve Pin (W0631230)
- ☐ 15 Valve Handle (W0480445)
- ☐ 16 Scraper Blade (W1431084)
- ☐ 17a Standard Carburetor (W0471076)
- ☐ 17b Optional Smoothie/ Shake Carburetor. (W0471128)
- ☐ 18a Sleeve O'Ring 💧 (W0340012)
- ☐ 18b Carburetor O-Rings 💧 (W0340011)
- ☐ 19 Optional Smoothie/ Shake Carburetor Sleeve. (W0471134)

Optional Smoothie/Shake Carburetor comes together as a Kit, using Part numbers, 17b, 18a, 18b, & 19.





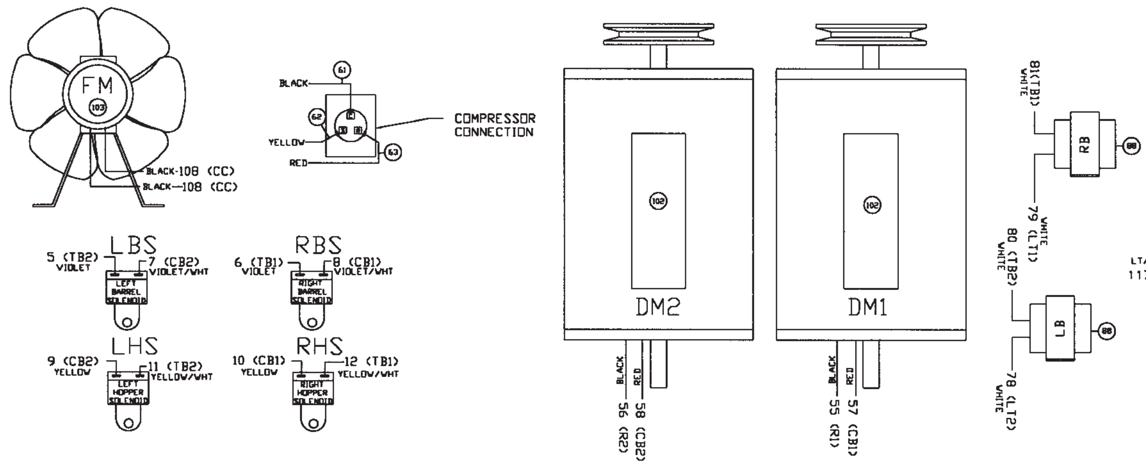


Add o-rings to plunger first, then lubricate plunger and o-rings. 💧

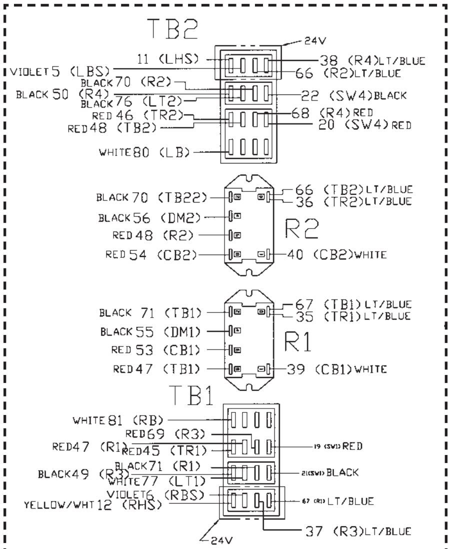
💧 = Lubricate

Assemble first, lubricate, then insert into freezing cylinder.

Exploded View Model 5512 Electrical Components



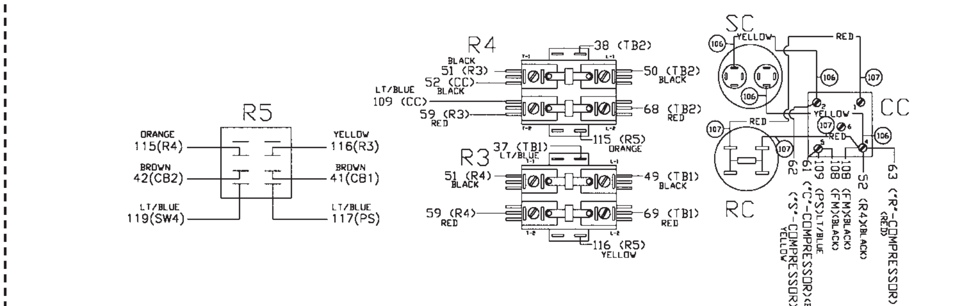
5512 ELECTRICAL COMPONENT



UPPER LEFT ELECTRICAL BOX



FRONT PANEL

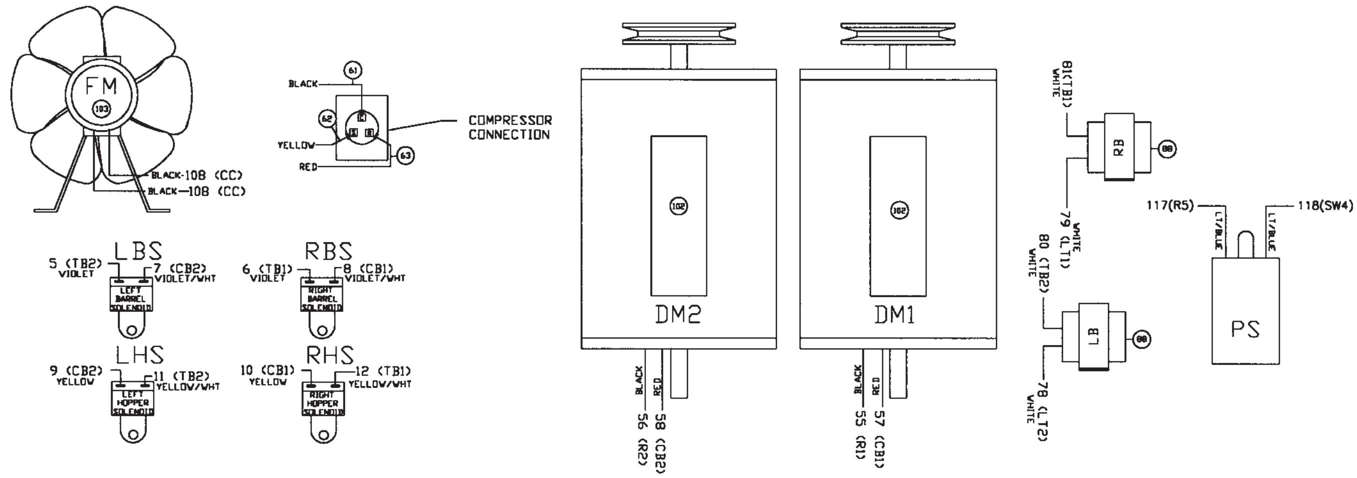


LOWER LEFT ELECTRICAL BOX

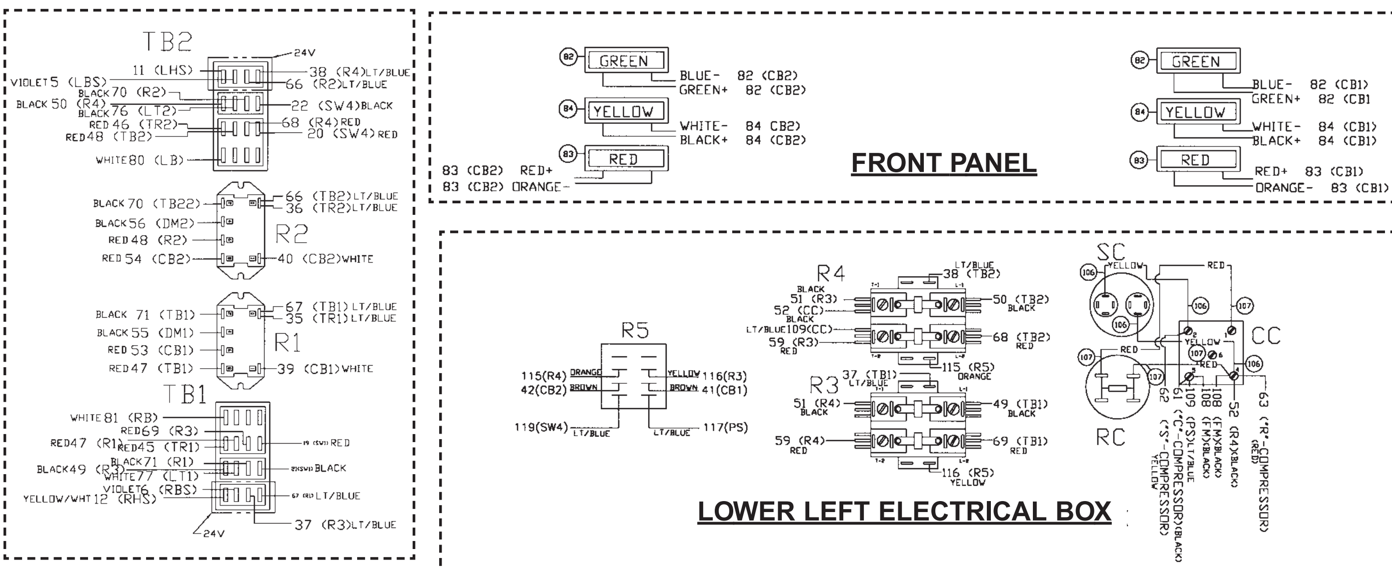
Item	Part Number	Description
LHS & RHS	W1650002	HOPPER SOLENOIDS
LBS & RBS	W1650002	BARREL SOLENOIDS
PS	W0650428	HIGH PRESSURE CUT-OUT
FU1-4	W1570616	FUSE HOLDERS
FM	W0320216	FAN MOTOR
DM1 & DM2	W0321022	DRIVE MOTORS
101	W0570712	POWER CORD REQUIRE 2 WIRE NUTS & 1 W0570308
100	W0570916	RELAY SWITCH
R1 & R2	W0570677	SWITCHING RELAYS
R3 & R4	W0570655	CONTACTORS
TR1 & TR2	W0570873	TRANSFORMERS REQUIRE 2 W0570205
SW2 & SW3	W0570939	MODE SWITCHES
SC	W0570672	START CAPACITOR
RC	W0570673	RUN CAPACITOR

Item	Part Number	Description
SW1 & SW4	W0570940	ON/OFF SWITCH WITH 2 W1571507 FUSE HOLDERS
CC	W0570880	COMPRESSOR RELAY
FU2 & FU4	W0570823	3.2 AMP FUSE
CB1 & CB2	W0650910	CIRCUIT BOARDS
FU1 & FU3	W0570842	5.0 AMP FUSE WITH 2 W1571507 FUSE HOLDERS
RB & LB	W0570053	BALLASTS
LT1 & LT2	W0570055	FLUORESCENT BULBS
LT1 & LT2	W0570054	LIGHT SOCKETS
TB1 & TB2	W0570235	4 CIRCUIT TERMINAL BLOCK
84	W1570010	AMBER INDICATOR LIGHT
83	W1570011	RED INDICATOR LIGHT
82	W1570012	GREEN INDICATOR LIGHT
R5	83106	CONTACTOR RELAY

Exploded View Model 5512-E Electrical Components



5512-E ELECTRICAL COMPONENT

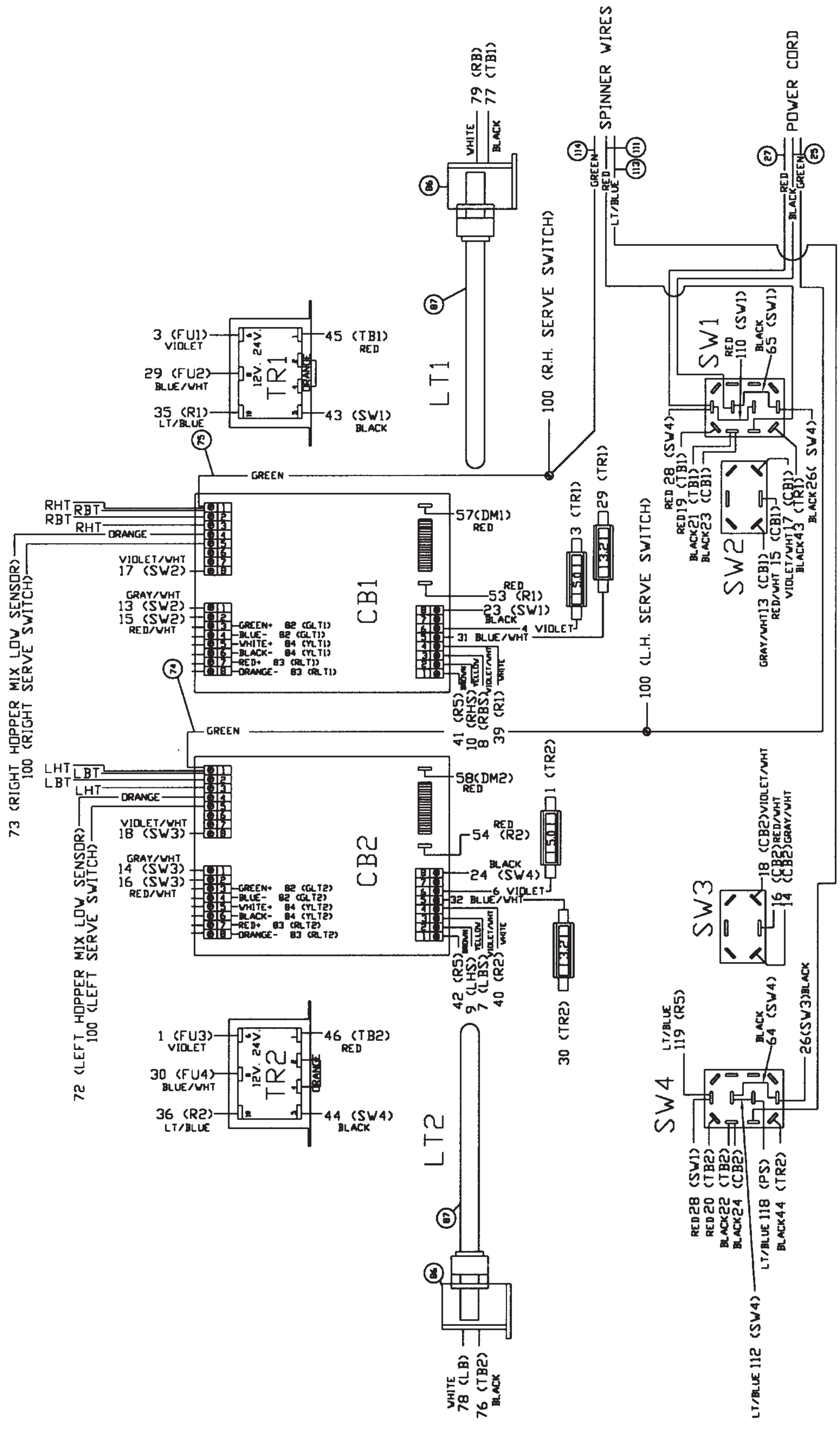


UPPER LEFT ELECTRICAL BOX

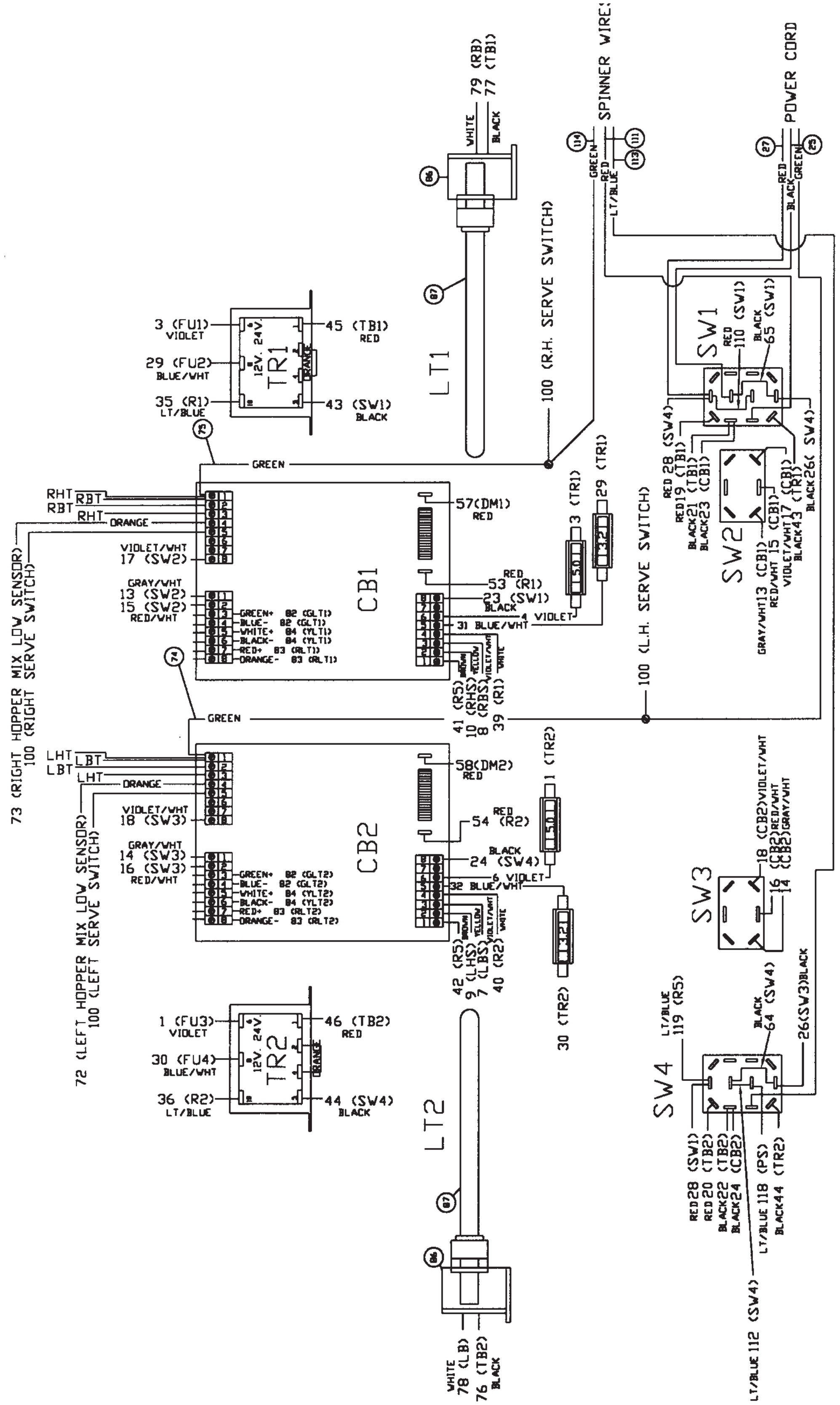
Item	Part Number	Description
LHS & RHS	W1650002	HOPPER SOLENOIDS
LBS & RBS	W1650002	BARREL SOLENOIDS
PS	W0650428	HIGH PRESSURE CUT-OUT
FU1-4	W1570616	FUSE HOLDERS
FM	W0320216	FAN MOTOR
DM1 & DM2	W0320031	DRIVE MOTORS
101	W0570714	POWER CORD REQUIRE 2 WIRE NUTS & 1 W0570308
100	W0570916	SERVE SWITCH
R1 & R2	W0570677	SWITCHING RELAYS
R3 & R4	W0570655	CONTACTORS
TR1 & TR2	W0570873	TRANSFORMERS REQUIRE 2 W0570205
SW2 & SW3	W0570939	MODE SWITCHES
SC	W0570672	START CAPACITOR
RC	W0570673	RUN CAPACITOR

Item	Part Number	Description
SW1 & SW4	W0570940	ON/OFF SWITCH WITH 2 W1571507 FUSE HOLDERS
CC	W0570880	COMPRESSOR RELAY
FU2 & FU4	W0570823	3.2 AMP FUSE
CB1 & CB2	W0650913	CIRCUIT BOARDS
FU1 & FU3	W0570842	5.0 AMP FUSE WITH 2 W1571507 FUSE HOLDERS
RB & LB	W0570053	BALLASTS
LT1 & LT2	W0570055	FLUORESCENT BULBS
LT1 & LT2	W0570054	LIGHT SOCKETS
TB1 & TB2	W0570235	4 CIRCUIT TERMINAL BLOCK
84	W1570010	AMBER INDICATOR LIGHT
83	W1570011	RED INDICATOR LIGHT
82	W1570012	GREEN INDICATOR LIGHT
R5	83106	RELAY CONTACTOR

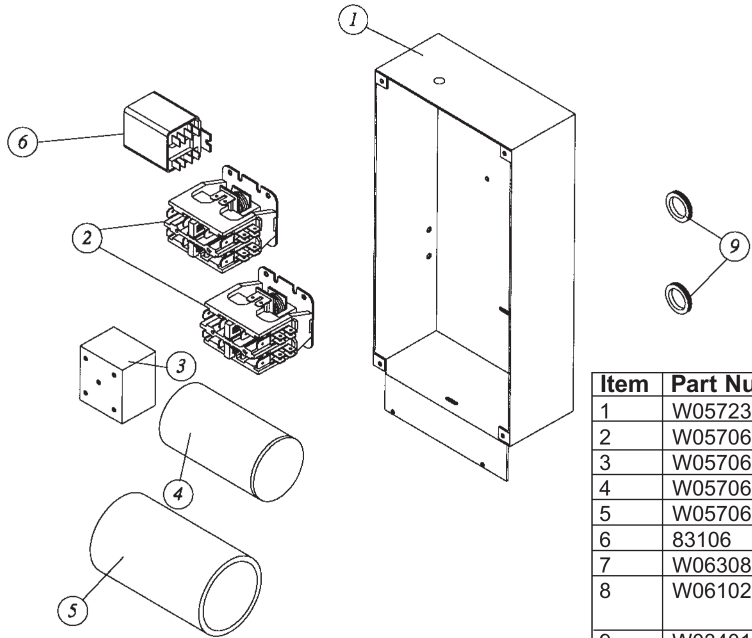
Model 5512 Electrical Components Front Electrical Box



Model 5512-E Electrical Components Front Electrical Box

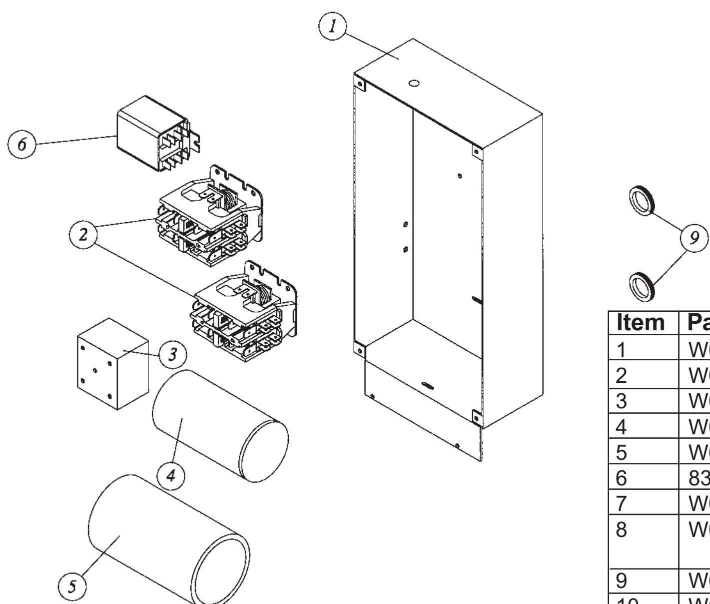


Model 5512 Contactor Box



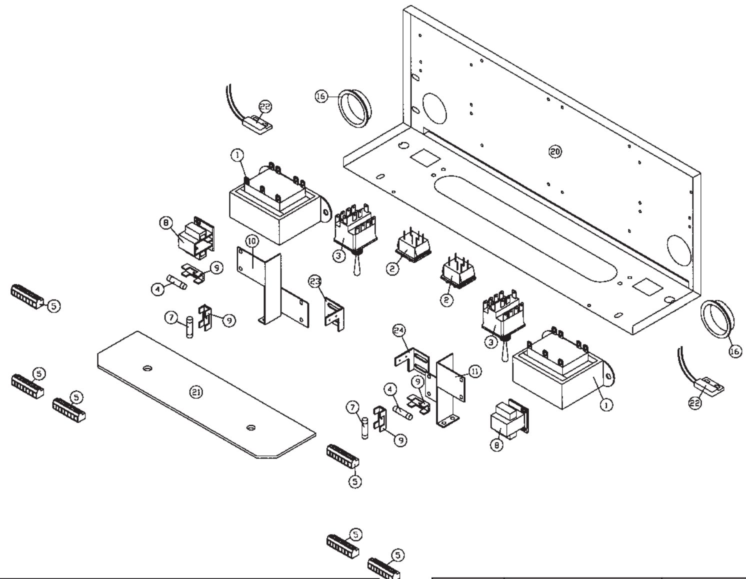
Item	Part Number	Description
1	W0572373	CONTACTOR BOX
2	W0570655	CONTACTORS
3	W0570618	COMPRESSOR RELAY
4	W0570617	RUN CAPACITOR
5	W0570619	START CAPACITOR
6	83106	RELAY
7	W0630802	CABLE TIE, 7.375" NATURAL (NOT SHOWN)
8	W0610264	SCRW, 10-24 X 1/4 TRUSS HD PH (NOT SHOWN)
9	W0340110	RUBBER GROMMET
10	W0610014	6.32 X 1/ 4 BINDING HEAD PHILLIPS (NS)
11	W0610138	SCRW, 8-32 X 1/4 RND HD SLT (NOT SHOWN)
12	W0572417	COMPRESSOR COMPONENT BUNDLE (NOT SHOWN)
13	W0572413	LEFT REAR HARNESS (NOT SHOWN)

Model 5512-E Contactor Box



Item	Part Number	Description
1	W0572373	CONTACTOR BOX
2	W0570655	CONTACTORS
3	W0570880	COMPRESSOR RELAY
4	W0570673	RUN CAPACITOR
5	W0570672	START CAPACITOR
6	83106	RELAY
7	W0630802	CABLE TIE, 7.375" NATURAL (NOT SHOWN)
8	W0610264	SCRW, 10-24 X 1/4 TRUSS HD PH (NOT SHOWN)
9	W0340110	RUBBER GROMMET
10	W0610014	6.32 X 1/ 4 BINDING HEAD PHILLIPS (NS)
11	W0610138	SCRW, 8-32 X 1/4 RND HD SLT (NOT SHOWN)
12	W0572417	COMPRESSOR COMPONENT BUNDLE (NOT SHOWN)
13	W0572413	LEFT REAR HARNESS (NOT SHOWN)

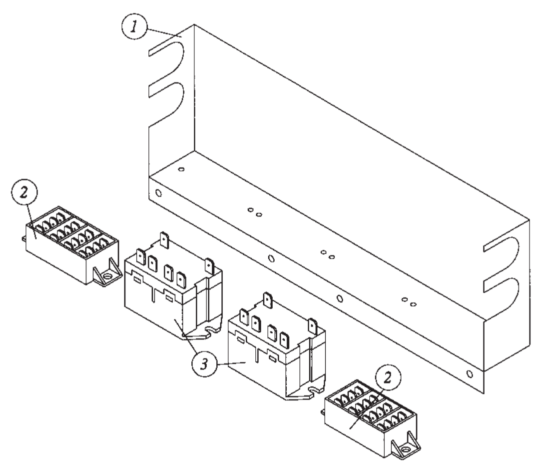
Models 5512 & 5512-E Electrical Box



Item	Part Number	Description
29	W0572415	ELECTRIC BOX WIRE BUNDLE
28	W0572414	RIGHT ELECTRICAL BOX HARNESS
27	W0572412	RIGHT SIDE HARNESS
26	W0572411	LEFT ELECTRICAL BOX HARNESS
25	W0570206	TERM, 2-520184-2 RECEPTACLE
24	W0572703	SERVE SWITCH BRACKET
23	W0572700	SERVE SWITCH BRACKET
22	W0570916	REED SWITCH (NORMALLY OPEN)
21	W0631630	LIGHTED ELECTRICAL BOX LENS
20	W0572357	ELECTRICAL BOX
19	W1631508	WIRE SADDLE
18	W0630804	WIRE TIE
17	W0630801	CABLE TIE
16	W0630008	HEYCO BUSHING
15	W0611037	6-32 HEX NUT ZINC PLATED

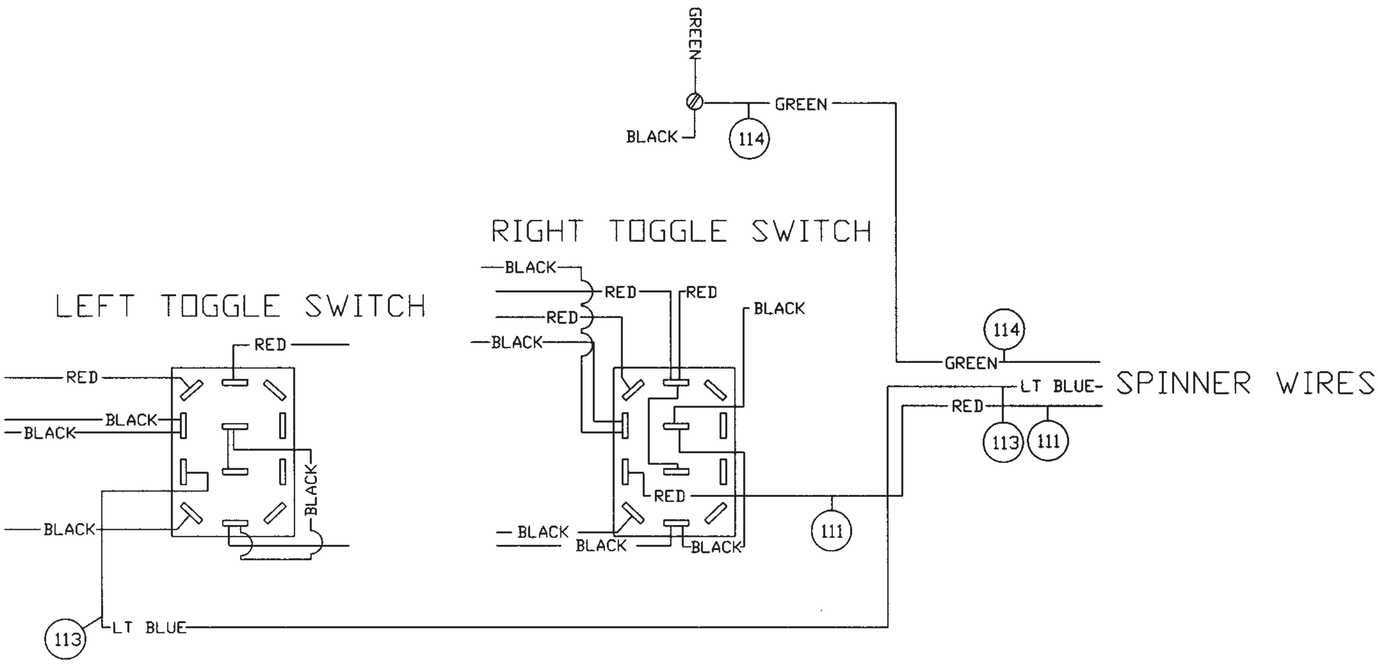
Item	Part Number	Description
14	W0611038	8-32 X 1/4 ROUND HD. SLOTTED
13	W0610131	8-32 X 1/4 SELF THREADING PHILLIPS
12	W0610019	6-32 X 1/4 PAN HD. SCREW
11	W0572702	LIGHT BRACKET R.H
10	W0572701	LIGHT BRACKET L.H.
9	W1570616	FUSE BLOCK
8	W0570044	LIGHT SOCKET, 5512
	W0570054	LIGHT SOCKET, 5512-E
7	W0570842	FUSE, 5.0 AMP
6	W1570701	CABLE, 6 CONDUIT GREY
5	W1570214	TERMINAL STRIP, 8 POSITION
4	W0570823	FUSE 3.2 AMPS
3	W0570940	TOGGLE SWITCH
2	W0570939	ROCKER SWITCH
1	W0570659	TRANSFORMER

Models 5512 & 5512-E Relay Box

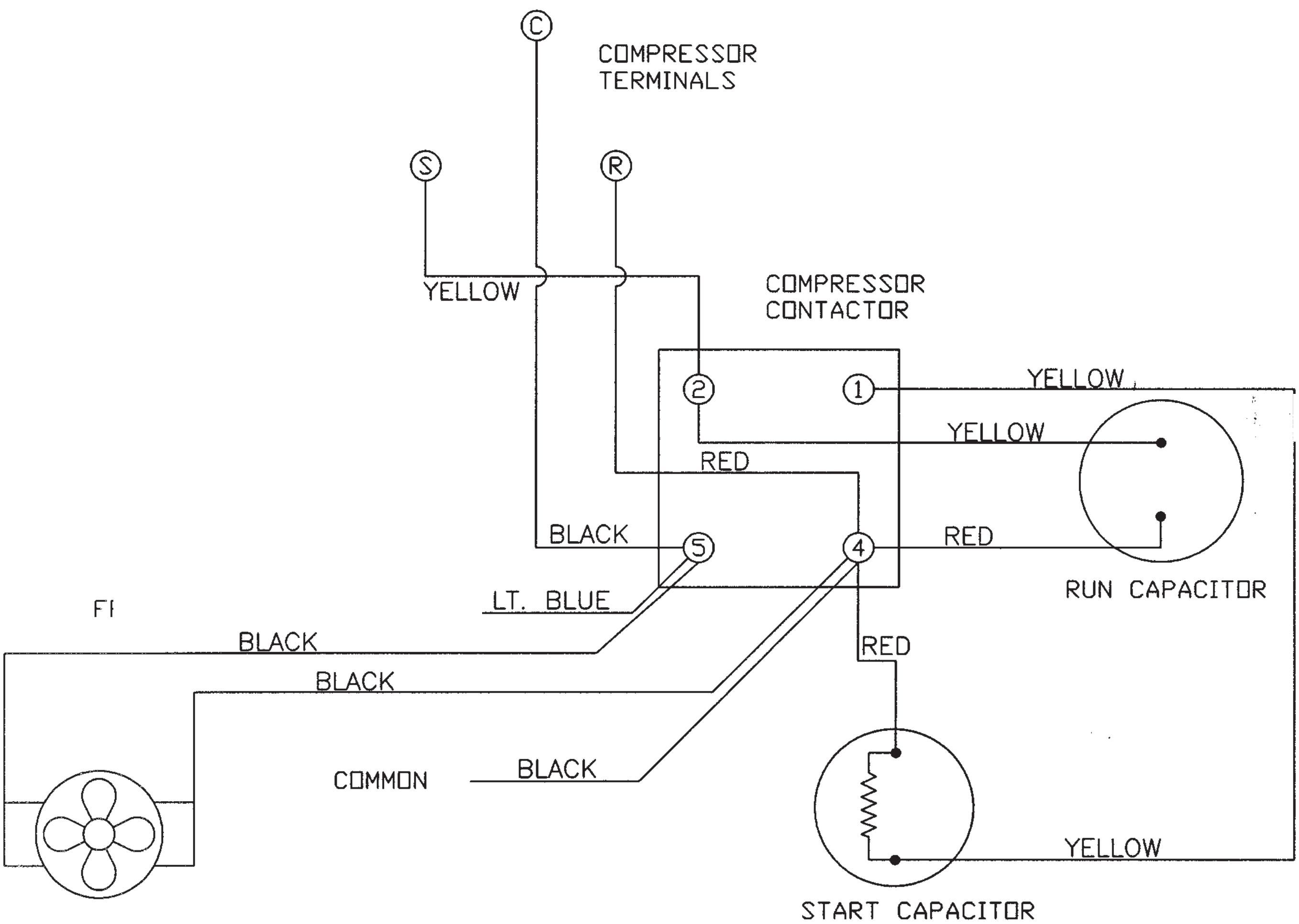


Item	Part Number	Description
1	W0572371	RELAY BOX
2	W0570235	TERMINAL BLOCK
3	W0570677	SOLID STATE RELAY
4	W0610131	SCREW, 8-32 X 1/4" SELF THRD PH
5	W0572410	RELAY BOX HARNESS (NOT SHOWN)
6	W0572416	RELAY BOX WIRE BUNDLE (NOT SHOWN)

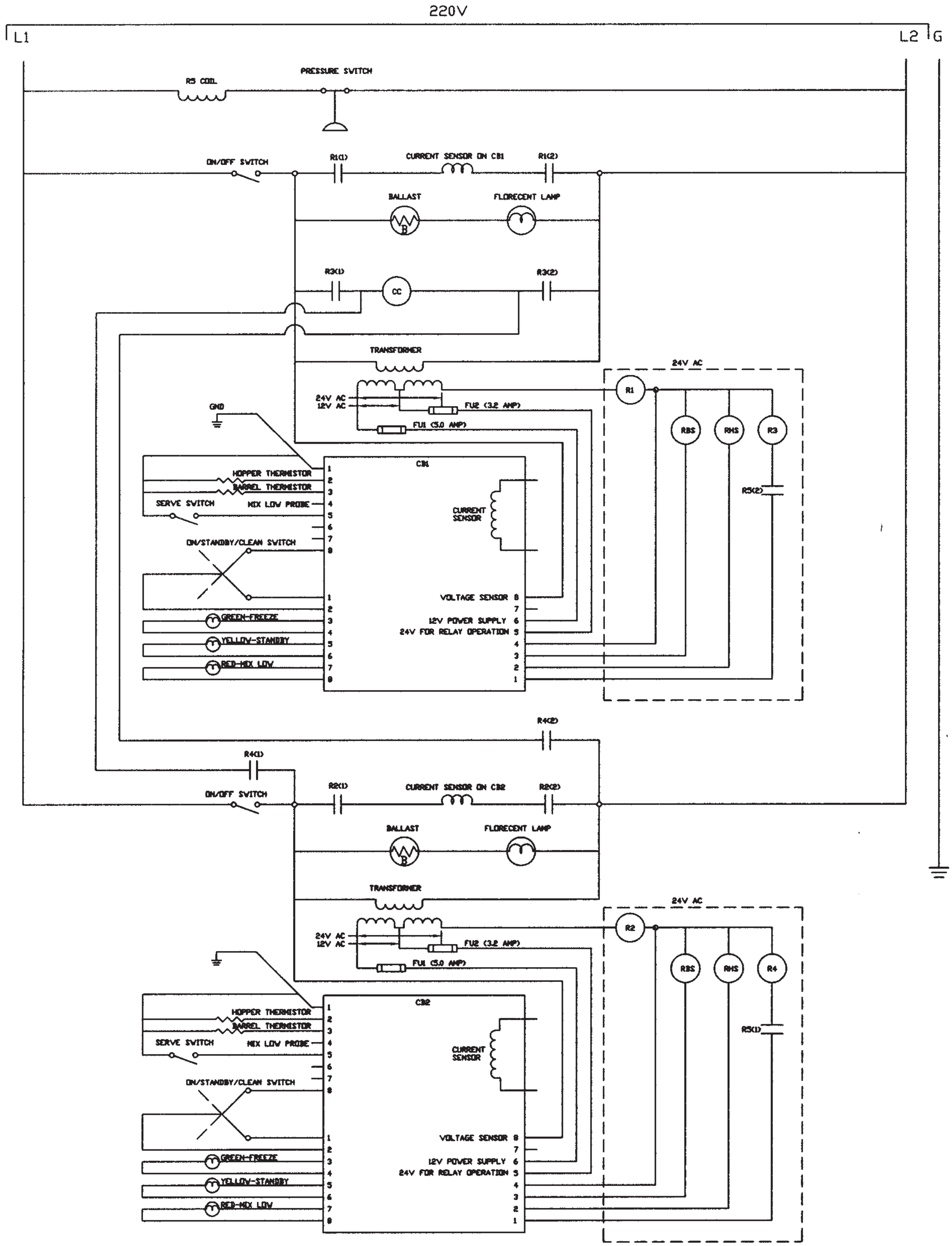
Models 5512 & 5512-E Spinner Wire Hookup



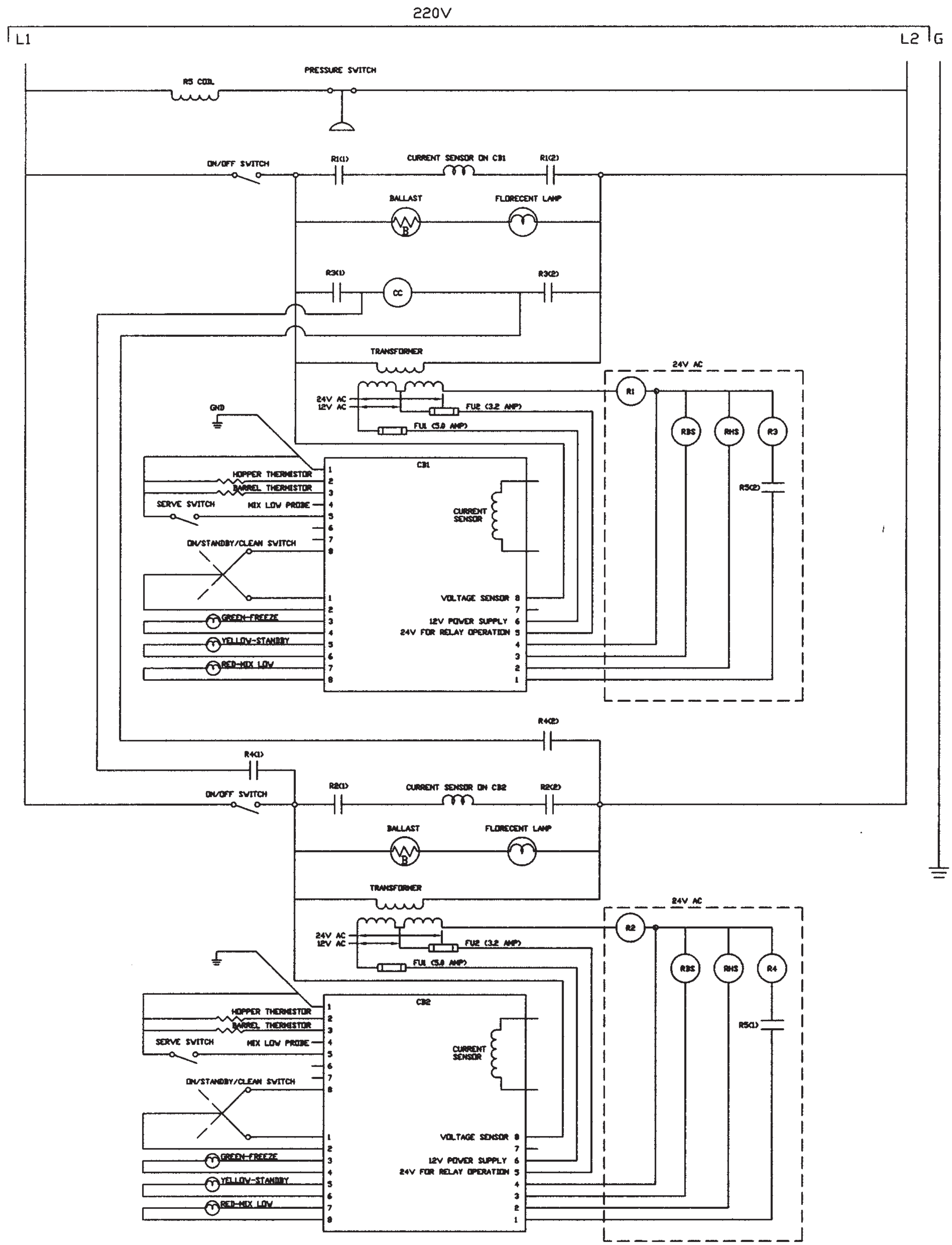
Models 5512 & 5512-E Compressor Contact Detail



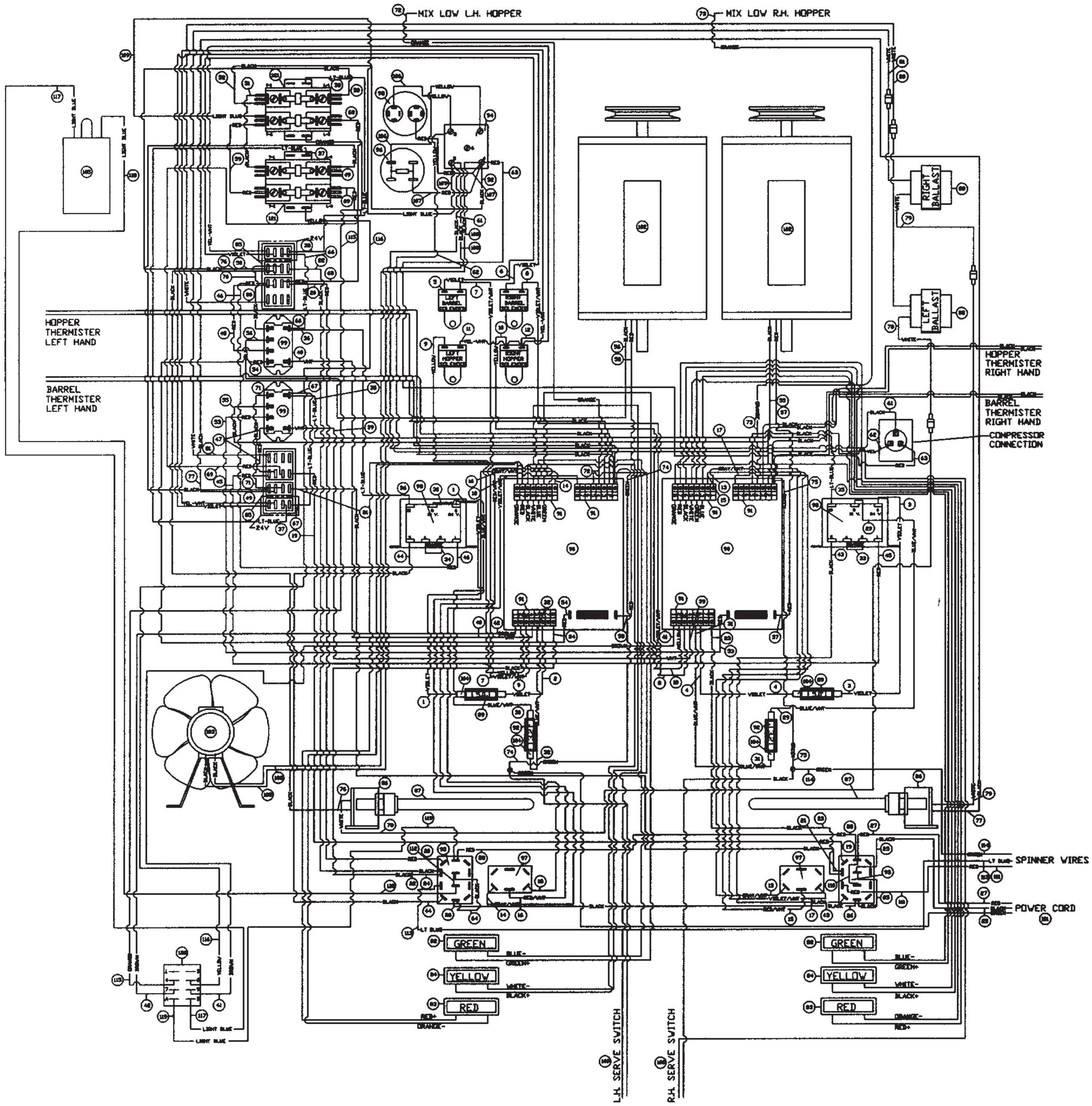
Model 5512 Ladder Diagram



Model 5512-E Ladder Diagram



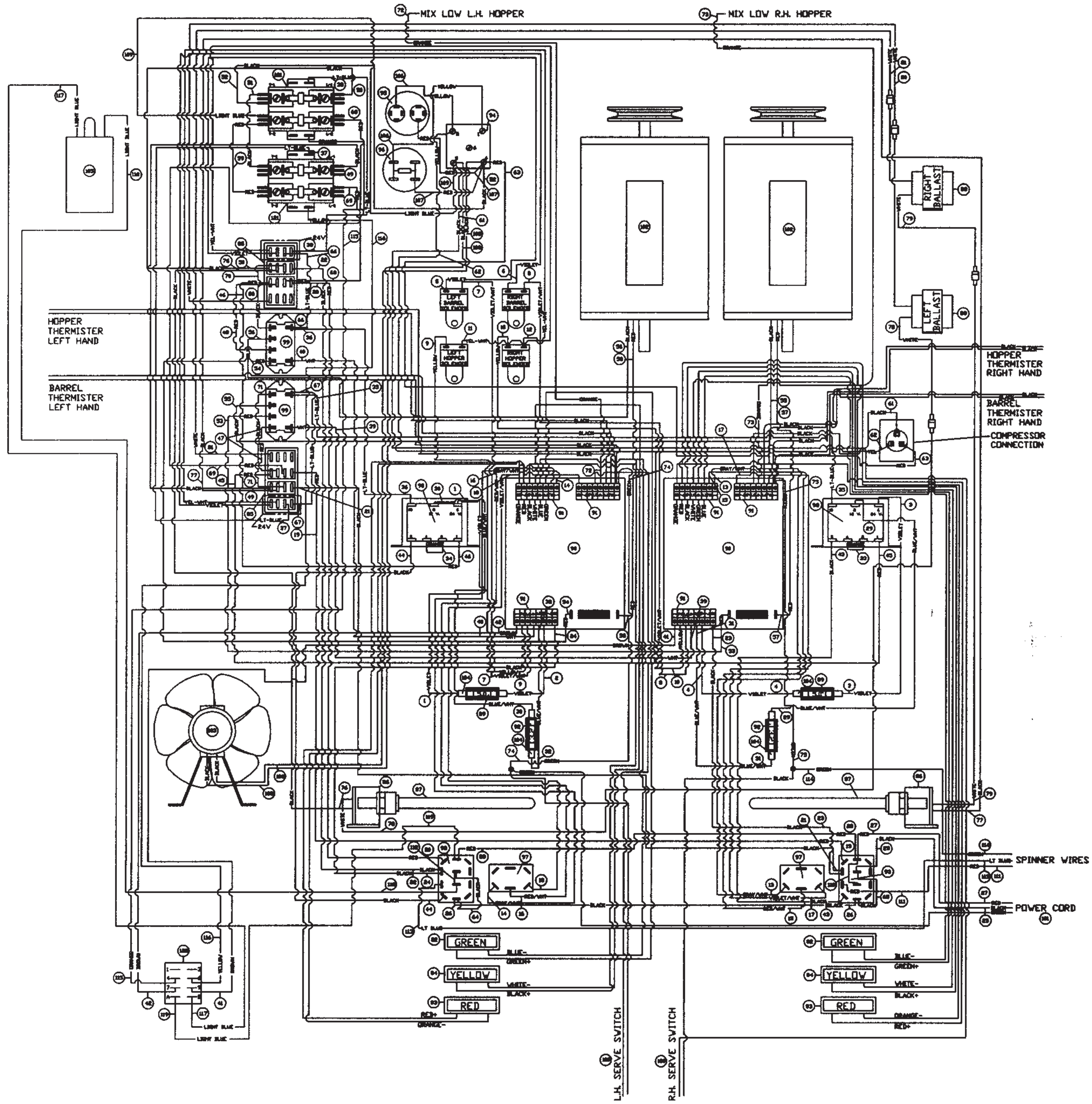
Model 5512 Wiring Diagram



Item	Part Number	Description
121	W0570655	CONTACTORS
120	83106	RELAY CONTACTOR
105	W0650428	HIGH PRESSURE CUT-OUT
104	W1570616	FUSE HOLDERS
103	W0320220	FAN MOTOR REQUIRE 2 W0570308
102	W0321022	DRIVE MOTORS REQUIRE 4 W0570205 2 W0570206 & 1 W0570308
101	W0570712	POWER CORD REQUIRE 2 WIRE NUTS & 1 W0570308
100	W0570916	SERVE SWITCH REQUIRE 1 EA. W0570308
99	W0570677	SOLID STATE RELAYS
98	W0570659	TRANSFORMERS REQUIRE 2 W0570205
97	W0570939	MODE SWITCHES
96	W0570619	START CAPACITOR

Item	Part Number	Description
95	W0570617	RUN CAPACITOR
94	W0570618	COMPRESSOR RELAY
93	W0570940	ON/OFF SWITCH
92	W0570823	3.2 AMP FUSE
91	W0570217	TERMINAL CONNECTORS (ORANGE)
90	W0650910	CIRCUIT BOARD
89	W0570842	5.0 AMP FUSE
88	W0570047	BALLASTS
87	W0570043	FLUORESCENT BULBS
86	W0570044	LIGHT SOCKETS
85	W0570235	4 CIRCUIT TERMINAL BLOCK
84	W1570010	AMBER INDICATOR LIGHT
83	W1570011	RED INDICATOR LIGHT
82	W1570012	GREEN INDICATOR LIGHT

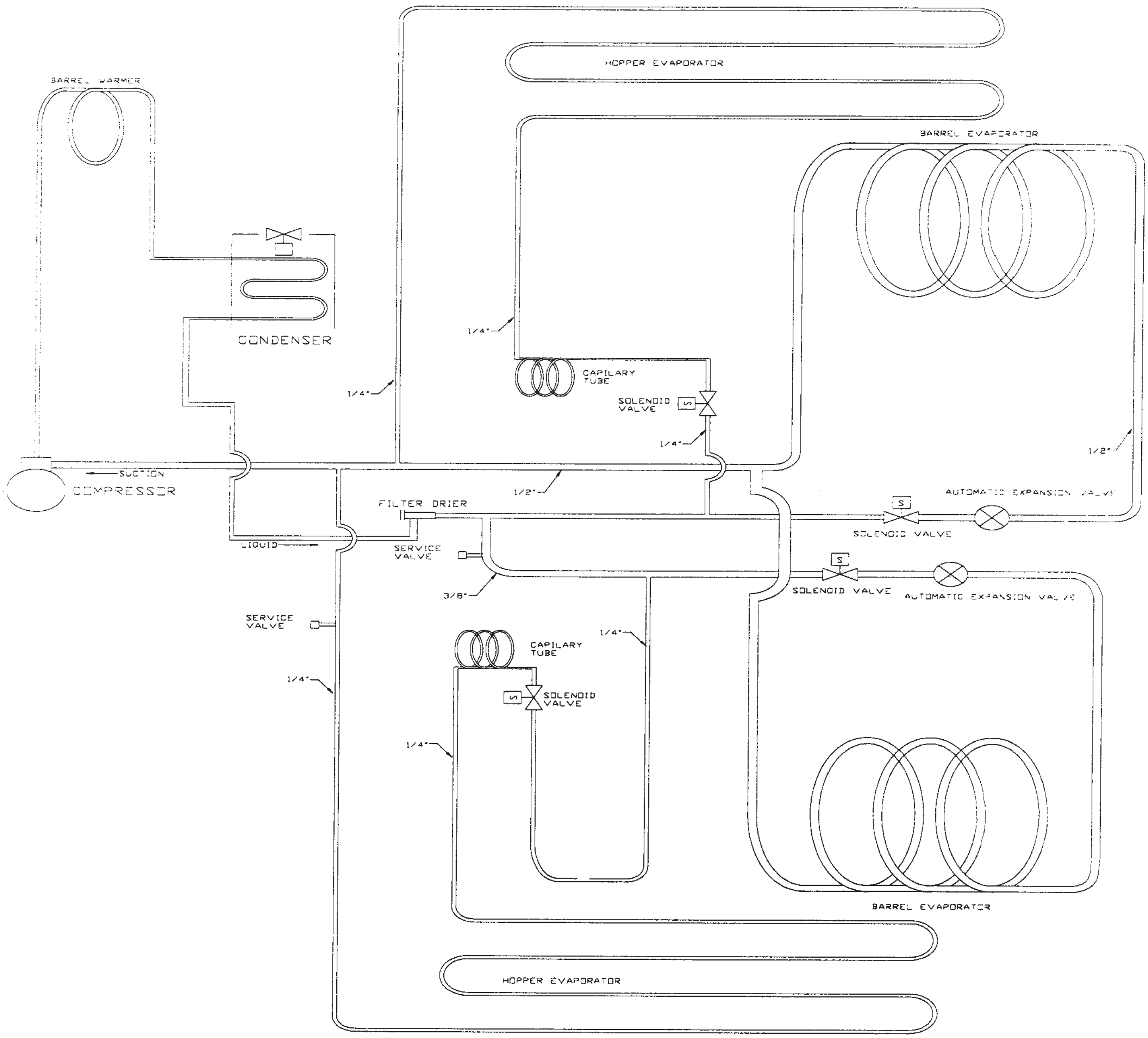
Model 5512-E Wiring Diagram



Item	Part Number	Description
121	W0570655	CONTACTORS
120	83106	RELAY CONTACTOR
105	W0650428	HIGH PRESSURE CUT-OUT
104	W1570616	FUSE HOLDERS
103	W0320216	FAN MOTOR REQUIRE 2 W0570308
102	W0320031	DRIVE MOTORS REQUIRE 4 W0570205 2 W0570206 & 1 W0570308
101	W0570714	POWER CORD REQUIRE 2 WIRE NUTS & 1 W0570308
100	W0570916	SERVE SWITCH REQUIRE 1 EA. W0570308
99	W0570677	SOLID STATE RELAYS
98	W0570873	TRANSFORMERS REQUIRE 2 W0570205
97	W0570939	MODE SWITCHES
96	W0570672	START CAPACITOR

Item	Part Number	Description
95	W0570673	RUN CAPACITOR
94	W0570880	COMPRESSOR RELAY
93	W0570940	ON/OFF SWITCH
92	W0570823	3.2 AMP FUSE
91	W0570214	TERMINAL CONNECTORS (ORANGE)
90	W0650913	CIRCUIT BOARDS
89	W0570842	5.0 AMP FUSE
88	W0570053	BALLASTS
87	W0570055	FLUORESCENT BULBS
86	W0570054	LIGHT SOCKETS
85	W0570235	4 CIRCUIT TERMINAL BLOCK
84	W1570010	AMBER INDICATOR LIGHT
83	W1570011	RED INDICATOR LIGHT
82	W1570012	GREEN INDICATOR LIGHT

Models 5512 & 5512-E Refrigeration Schematic



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